

CINCINNATI WATER WORKS



**LAWS, ORDINANCES, RULES AND
REGULATIONS**

**GREATER CINCINNATI WATER WORKS
LAWS, ORDINANCES, RULES AND REGULATIONS**

Governing the Supply of Water To All Customers

Promulgated by: David E. Rager
 Director of Water Works

Administered by: Steven Hellman
 Supt. of Business Planning and Development

 Connie Roesch
 Supt. of Commercial Services Division

 Al Brune
 Supt. of Water Supply

 Richard Merz
 Supt. of Water Distribution

 Jack DeMarco
 Supt. of Water Quality & Treatment

 Paul E. Tomes
 Chief Engineer

Numbers are in accordance with the Cincinnati Municipal Code.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

EXCERPTS FROM THE CHARTER OF THE CITY OF CINCINNATI

Article I. Powers of the City

"The city shall have all powers of local self-government and home rule and all other powers possible for a city to have under the constitution of the state of Ohio. The city shall have all powers that now are or hereafter may be granted to municipalities by the laws of the state of Ohio. All such powers shall be exercised in the manner prescribed in this charter, or if not prescribed herein, in such manner as shall be provided by ordinance of the council."

Article II. Legislative Power

Section 3. "No ordinance prescribing rates and charges to be collected by or paid to any publicly-owned public utility shall be passed as an emergency ordinance unless the ordinance is introduced in council at least three weeks before it is finally voted upon and a public hearing has been held by council thereon."

Article IV. Executive and Administrative Service

Section 9. "The city manager shall appoint the superintendent of water works, who shall have charge of the administration of the Cincinnati water works. A sufficient charge shall be made for the supply of water, or any other public utility service operated by the city, to pay the expenses of such water works or other utility, the interest, sinking fund and retirement charges on bonds issued for such water works or other public utility and for such improvements to said water works or other public utility as council may determine should be paid for without the issue of bonds. The city shall have the power to sell water outside the city limits and outside of the state at such a price as the council may determine. Revenue derived from the water works of the city shall be used for the purposes of said water works, and for no other purpose, and shall not be subject to transfer to any other fund."

Section 10. "The city solicitor, director of finance, director of public utilities, and superintendent of the water works shall be subject to removal by the city manager."

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

EXCERPTS FROM THE ADMINISTRATIVE CODE OF THE CITY OF CINCINNATI

Article I. General

Section 3 Administrative Organization of Departments

The director or chief administrative officer of each department, with approval of the city manager, shall have the authority to organize such department into divisions or other appropriate units and may assign work to such units as may be necessary and convenient for the proper conduct of the work of the department. Divisions or administrative units established by ordinance, however, may not be abolished except by ordinance; powers and duties conferred by ordinance upon any department, division or administrative unit may not be assigned or transferred elsewhere except by ordinance.

The city manager may assign powers and duties to departments in addition to those assigned by ordinance.

Article VIII. The City Water Works

Section 1. Superintendent of Water Works. "The city manager shall appoint a superintendent of water works as provided by charter."

Section 2. Supplying Water Outside City Limits. "No contract for supplying surplus water to other political subdivisions outside the city of Cincinnati shall be entered into except pursuant to an authorization thereof by ordinance or resolution of the council."

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

TABLE OF CONTENTS

DIVISION A: GENERAL

Section

- 401-1. General Regulation
- 401-2. Definitions
 - 401-2D Director
 - 401-2-S. Superintendent
 - 401-2-U. Utility; Water Works; Department
 - 401-2-W. Water Service
 - 401-2-W1 Water Service Connection
- 401-3. Committing Nuisance on Water Works Grounds
- 401-4. Hunting and Fishing on Water Works Grounds Prohibited
- 401-6. Wasting Water
- 401-7. Fixed Pressure Not Guaranteed
- 401-8. Inspections
- 401-10. Adhere to Ordinances, Rules and Regulations Requisite to Continued Service

DIVISION B: WATER MAIN INSTALLATIONS

Section

- 401-11. New Water Main Extensions, General
- 401-12. Plan 1, Payment of Entire Cost in Advance
- 401-13. Plan 2, Construction by Owner
- 401-14. Plan 3, Construction by Owner With Water Works Participation
- 401-15. Plan 4, Construction Without Petition
- 401-16. Plan 5, Assessment in Accordance With Revised Code
- 401-17. Property Owners Not to be Relieved from Payment
- 401-18. Size of Mains
- 401-19. Mains in Private Property or Easements
- 401-20. Mains in Unimproved Streets
- 401-21. Use of Plan 3 Prohibited Where Territory Not Capable of Development
- 401-22. Record of Outstanding Charges to be Filed With the County Auditor
- 401-23. Cases of Inadvertence or Oversight

DIVISION C: SERVICE BRANCHES

Section

- 401-31. Application for Water Service Connection
- 401-32. Property Served Must Abut Roadway
- 401-33. Installation of Service Branch

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

TABLE OF CONTENTS (Cont.)

DIVISION C: SERVICE BRANCHES (Cont.)

Section

- 401-34. Building Permits Not to be Approved Unless City Water Is Available
- 401-35. Requirements of Service Branches and Meters
- 401-36. Water Branches Not to be Laid in Sewer Trenches
- 401-37. Interconnected Service Branches
- 401-38. Replacement and Repair of Service Branches
- 401-39. Maintenance of Service Branch by Property Owner
- 401-40. Disconnection of Service Branch by Department

DIVISION D: CONNECTIONS, PLUMBERS' REGULATIONS

Section

- 401-41. Only Certified Persons to Install Service Branch from Property Line to and Including Meter
- 401-42. Unauthorized Water Connection Prohibited
- 401-43. Buildings to Have Separate Meters
- 401-44. Connecting Unused Pipes and Altering Existing Pipes

DIVISION E: METERS

Section

- 401-51. Meters Required
- 401-52. Number of Meters.
- 401-53. Application for Meter
- 401-54. Setting of Meters
- 401-55. Distance from Highway
- 401-56. Unlawful Removal of Meter
- 401-57. Department to Have Access to Meter
- 401-58. Inspection of Meters
- 401-59. Installation of Remote Meter Registers on Existing Services
- 401-60. Charges

DIVISION F: WATER FOR TEMPORARY USES

Section

- 401-61. Water for Temporary Use
- 401-62. Use of Water Without a Permit
- 401-63. Charge for Unmetered Water
- 401-65. Special Meters
- 401-67. Cisterns on Streets Having Water Mains
- 401-69. Resale of Water Prohibited

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

TABLE OF CONTENTS (Cont.)

DIVISION G: APPLICATIONS FOR WATER SERVICE

Section

- 401-71. Service Contract to be Made by Owner
- 401-73. Applicant to Be Free of Indebtedness for Services Billed by the Department

DIVISION H: WATER RATES

Section

- 401-75. Water Rates
- 401-76. Service Charges
- 401-77. Water Commodity Charges
- 401-78. Charges for Fire Protection Services
- 401-79. Welfare Institutions
- 401-81. Charges to Political Subdivisions
- 401-82. Exemptions from Charges
- 401-83. Exemptions from Charges for Fire Protection Services
- 401-85. Welfare Institutions Defined
 - 401-85-C. Charitable Institution
 - 401-85-E. Educational
 - 401-85-S. Semi-Charitable Institution
- 401-86. Boundary Line Consumers
- 401-87. Unified Service Areas
- 401-88. Municipal Purposes
- 401-89. Fire Hydrant Repair and Replacement Charge
- 401-90. Contract Billing Services for Other Agencies

DIVISION I: PAYMENT OF BILLS

Section

- 401-91. Unlawful Taking of Water
- 401-92. Payment Requirements
- 401-93. Service Charge for Non-Payment
 - 401-93-A. Involuntary Disconnection
 - 401-93-B. Reconnection of Water Service Charge
- 401-94. Assessing Charges
- 401-95. Owner's Responsibility
- 401-96. Leakages
- 401-97. Bad Checks, Service Charge
- 401-98. Bankruptcy
- 401-101. Bills for Material or Service
- 401-102. Additional Charges for Services

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

TABLE OF CONTENTS (Cont.)

DIVISION I: PAYMENT OF BILLS (Cont.)

Section

- 401-103. Failure to Receive Bills
- 401-106. Collection of Water Bills by Division of City Treasury

DIVISION J: FIRE HYDRANTS

Section

- 401-111. Fire Hydrant Leads
- 401-112. Fire Hydrants Within City Limits
- 401-113. Fire Hydrants Outside City Limits
- 1231-15. License Fee for Use of Fire Hydrant

DIVISION K: FIRE PROTECTION SERVICE

Section

- 401-117. Fire Protection Services for Private Premises
- 401-118. Combination of Services

DIVISION L: CROSS-CONNECTION CONTROL AND WATER QUALITY PROTECTION

Section

- 401-125. Backflow Protection
- 401-126. Notification, Payment of Fees for Isolation Backflow Preventers; Consequences of Failure

DIVISION M: PENALTIES

Section

- 401-999. Penalties
- 401-999-A. Violation of Section 401-3, 401-4 or 401-6

APPENDIX

STANDARD DRAWINGS

DIVISION A:

GENERAL

DIVISION A - GENERAL

Sec. 401-1. General Regulation. The Cincinnati water works shall be governed by Chapter 401 and any other applicable ordinances, together with explanatory rules and regulations promulgated by the superintendent with the approval of the city manager.

Sec. 401-2. Definitions. For the purpose of this chapter the words and phrases defined in the sections hereunder shall have the meanings therein respectively ascribed to them, unless a different meaning is clearly indicated by the context.

Sec. 401-2-D. Director. "Director" shall mean the superintendent of water works as created by Article IV, Section 9 of the charter of the city of Cincinnati. The director may also be designated as "superintendent" in this chapter.

Sec. 401-2-S. Superintendent. "Superintendent" shall mean the superintendent of water works as created by Article IV, Section 9 of the charter of the city of Cincinnati. The superintendent may also be designated as "director" in this chapter.

Sec. 401-2-U. Utility; Water Works; Department. "Utility," "water works," and "department," as used in this chapter, shall mean the Cincinnati water works, also known as the department of water works of the city of Cincinnati or greater Cincinnati water works.

Sec. 401-2-W. Water Service. "Water service" shall mean the readiness to supply or actual supplying of water to premises in which a water service connection has been installed.

Sec. 401-2-W1. Water Service Connection. "Water service connection" shall mean the physical connection of a service branch with a water main.

Sec. 401-3. Committing Nuisance on Water Works Grounds. No person shall swim in any of the reservoirs set apart for use of the Water Works or throw objects into or recover objects from any such reservoirs, or deposit filth, or trespass, or commit a nuisance of any kind in such reservoirs or upon grounds set apart for the use of the Water Works.

Sec. 401-4. Hunting and Fishing on Water Works Grounds Prohibited. No person shall hunt or shoot, or otherwise kill, any bird or animal on any of the grounds or reservoirs of the water works, or fish in any of the reservoirs, or mutilate, or in any way injure, any tree or shrub upon such grounds or upon any property set apart for the use of the Water Works, or in any way injure any property on such grounds or reservoirs. This shall not apply to extermination of harmful animals, trees or shrubs by utility forces or authorized contractors.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION A - GENERAL (continued)

Sec. 401-6. Wasting Water. No person shall leave open any hydrant or faucet connected with the city water works so as to allow water to flow from the same when such water is not being used.

Sec. 401-7. Fixed Pressure Not Guaranteed. The department does not guarantee consumers full volume, fixed pressure or an effective, continuous supply of water, such matters being subject to the varying conditions which may affect the operation and maintenance of the mains, services, pumping stations, reservoirs and other parts of the water works system.

Sec. 401-8. Inspections. Authorized employees of the department shall have the right, at any reasonable time, to enter the premises for the purpose of inspecting any water service branch or fire protection service and any or all piping or equipment connected thereto.

Sec. 401-10. Adherence to Ordinances, Rules and Regulations Requisite to Continued Service. The superintendent shall be authorized to discontinue service for failure to comply with any portion of Chapter 401 of the Cincinnati Municipal Code or the rules and regulations authorized thereunder.

DIVISION B:

WATER MAIN INSTALLATIONS

DIVISION B - WATER MAIN INSTALLATIONS

Sec. 401-11. New Water Main Extensions, General. Except as specifically provided by ordinance, all construction of water main extensions and water tap service in streets and ways not already supplied with water shall be in accordance with one of the plans set forth in Section 401-12 to 401-16, inclusive.

- R1 - Any water main or main extension intended primarily to serve properties or premises abutting the street, road or way in which it is laid, shall be known as a distribution main.
- R2 - Any water main, 12-inches in diameter and larger, intended primarily to carry water for the supply of distribution mains, shall be known as a transmission main. Service branches will not be permitted from transmission mains.
- R3 - Water mains, 12-inches and 16-inches in diameter, may be installed for the dual purpose of transmission and distribution. The determination as to whether this size main is dual, or solely for transmission, will depend upon the intent when it was installed.

Sec. 401-12. Plan 1, Payment of Entire Cost in Advance. Any one or more property owners may request the superintendent to determine the feasibility and the estimated cost of the construction of a proposed water main extension to serve their premises. If the superintendent approves the proposed extension and determines the estimated construction cost, such property owners may deposit with the department a sum equal to such estimated cost and the superintendent shall thereupon proceed with the construction. Any surplus in the deposit amount over and above the construction cost shall be refunded to the owner or owners or their agent. Should the construction cost exceed the deposit amount, the owner or owners shall pay this excess amount and no water taps shall be installed or water service rendered from the extension until the cost is paid in full.

- R1 - No extension of water main will be approved for less than the entire frontage of the applicant, and the necessary length from an existing main to that frontage.

Sec. 401-13. Plan 2, Construction by Owner. The superintendent may permit the owner or owners of property to be served to arrange for the laying of water main extensions by private contract. In such cases, the plan for the water main must be approved by the superintendent and the political subdivisions and planning commissions having jurisdiction. Before starting a project the contractor shall furnish a bond as guarantee for each project or section thereof and obtain all required street opening permits.

Sec. 401-13. Plan 2, Construction by Owner (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

All material used must have been inspected by a water works representative. All work shall be done in accordance with water works specifications. Charges for inspection of materials and construction shall be established by the superintendent and paid by the contractor.

- R1 - Plans for subdivisions must include complete circulation within the area, and between the area and the existing system, except in short culdesacs. Subdivisions with more than ninety (90) single family residences, or the equivalent, shall require more than one (1) connection to the existing system.
- R2 - Valves, for all installations by contractors for the owners must be purchased from Water Works stock.
- R3 - The charges applicable for all ductile or gray iron pipe and fittings inspected by Water Works Representatives shall be at a rate established by and published periodically by the Department. If the inspection must be made outside the Cincinnati Water Works service area, lodging per diem and traveling expenses encountered by the Water Works for material inspection will be included in the total inspection charges, as well as the per hour salary of the Water Works representative while traveling to and from the inspection site.
- R4 - Construction inspection will be charged at the rate per hour established and published periodically by the Director.
- R5 - The contractor will furnish a bond in the amount of one thousand dollars (\$1,000.00) as a guarantee for each project.
- R6 - When the project is covered by a proper bond in favor of the political subdivision having jurisdiction, no additional bond will be required.
- R7 - Plans for all water main extensions within the Cincinnati System must be prepared by the owner's engineer and submitted to the Cincinnati Water Works for review and approval.

The cost of plan review performed by the Department shall be at a rate per hour established and published periodically by the Department and shall be borne by the person submitting the plan.

- R8 - Disinfection and testing of new water mains will be charged at the rate per foot set by the Director with the approval of the City Manager and published periodically. These charges shall be paid to the Water Works by the contractor who installs the water main.

Sec. 401-14. Plan 3, Construction by Owner With Water Works Participation.
When the development of a subdivision requires the owner to lay water mains in

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

existing dedicated streets or highways, the water works will participate in the cost of supplying materials not to exceed those stipulated here below.

The superintendent will determine the abutting front footage, not owned by the developer, but likely to be developed in the future and which can be assessed.

When the new main is to be 8-inch, the water works will furnish:

- (a) half as many lineal feet of water main as the amount above determined;
- (b) all of the valves to be installed in the existing street except those the developer would be required to install if there had been a main in the existing street in front of his property; and
- (c) when the property to be served is a corner lot or the new main must pass a corner lot, or lots, to reach the property to be served, the water works will furnish enough lineal feet of pipe, in no case to exceed 150 feet, to reach from the existing or proposed main on one street past the second side of the corner lot, or lots, to the back property line thereof, and any valves required to make the connection at the intersection of the mains.

When the water works directs the owner to install a new 12- or 16-inch main under the provisions of Section 401-18 in any political subdivision, the water works will furnish, in cash, the amount required for participation by the Hamilton County contract. The water works will also furnish, as determined by the superintendent, either pipe and valves or cash of the same monetary value as would have been furnished had the main been 8 inch.

Plan 3 is subject to all the requirements of Plan 2 unless specifically excepted in this section.

When a main is installed by Plan 3, charges shall be assessed against owners other than the participating developer at any amount per lineal abutting foot of their property fixed by the superintendent as the average cost per lineal foot of laying 8-inch water mains in the city of Cincinnati during the preceding calendar year.

When a water main has been constructed in accordance with Plan 3 water tap connections to such extension shall be permitted only to serve premises for which the front foot charge was collected at the time of filing the petition, provided that the owners of other property may be permitted to make connections upon payment of sums respectively equal to the price per lineal foot fixed by the superintendent plus 10 percent times the front footage of the abutting premises owned by them.

Sec. 401-14. Plan 3, Construction by Owner With Water Works Participation (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Where service is granted from a water main by virtue of an easement as provided in Section 401-32, or by an ownership of a small frontage serving a larger tract, the Plan 3 or Plan 4 assessment shall be not less than 50 feet for parcels or lots comprising not more than one-half acre, not less than 75 feet for areas between one-half and one acre, not less than 100 feet for areas between one and two acres, and not less than 150 feet for areas between two and three acres. For areas in excess of three acres the superintendent shall be authorized to promulgate an assessment based upon benefits to be derived. If such bill is not paid within 90 days after the date of rendition, an additional charge of 10 per cent thereof shall be added thereto. No connecting tap shall be permitted to be made in any such extension, whether located in or outside the city, until the owner of the property requesting the tap shall have paid the charges specified herein or obligated himself to do so.

- R1 - Applicants for assistance under Plan 3 must submit a copy of the County Auditor's Plat, indicating ownership of all property affected by proposed mains.
- R2 - The applicant must note on the plat any options, or proposals of change of ownership of which he is aware. The signature of the applicant must appear on the plat.
- R3 - Corner property served from another street or road will not be considered assessable unless frontage on new main exceeds one hundred and fifty (150) feet, and can be sold as frontage on road where new main is to be installed.
- R4 - Public and semi-public property will not be considered assessable under paragraph two of Sec. 401-14.
- R5 - Property where topography prevents development will not be considered assessable. However, where this is a questionable decision, the Superintendent may give credit for a part of such frontage.
- R6 - All property not owned by the subdivider shall be placed on the deferred assessment list, regardless of whether it was used for credit or not.
- R7 - After an application is filed and the credit determined, such determination may not be altered unless the conditions establishing the determination are altered.

Sec. 401-14. Plan 3, Construction by Owner With Water Works Participation (Cont.)

- R8 - Owners of other property may be permitted to make connections to Plan 3 mains constructed prior to February 28, 1953 upon payment of \$1.10 per lineal foot of frontage.
- R9 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between March 1, 1953 and August 2, 1957 upon payment of \$2.10 per lineal foot of frontage.
- R10 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between August 3, 1957 and September 15, 1959 upon payment of \$4.40 per lineal foot of frontage.
- R11 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between September 16, 1959 and January 1, 1961 upon payment of \$5.50 per lineal foot of frontage.
- R12 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between January 1, 1961 and January 1, 1973 upon payment of \$6.60 per lineal foot of frontage.
- R13 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between January 1, 1973 and January 1, 1976 upon payment of \$7.70 per lineal foot of frontage.
- R14 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between January 1, 1976 and May 1, 1978 upon payment of \$8.80 per lineal foot of frontage.
- R15 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between May 1, 1978 and May 1, 1980 upon payment of \$13.20 per lineal foot of frontage.
- R16 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between May 1, 1980 and July 1, 1981, upon payment of \$15.00 per lineal foot of frontage.
- R17 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between July 1, 1981 and September 1, 1982 upon payment of \$18.70 per lineal foot of frontage.

Sec. 401-14. Sec. 401-14. Plan 3, Construction by Owner With Water Works Participation (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

- R18 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between September 1, 1982 and January 1, 1986 upon payment of \$19.80 per lineal foot of frontage.
- R19 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between January 1, 1986 and August 1, 1987 upon payment of \$22.00 per lineal foot of frontage.
- R20 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between August 1, 1987 and November 1, 1989 upon payment of \$24.20 per lineal foot of frontage.
- R21 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between November 1, 1989 and April 1, 1991 upon payment of \$28.60 per lineal foot of frontage.
- R22 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between April 1, 1991 and April 1, 1993 upon payment of \$29.70 per lineal foot of frontage.
- R23 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between April 1, 1993 and June 1, 1994 upon payment of \$33.00 per lineal foot of frontage.
- R24 - Owners of other property may be permitted to make connections to Plan 3 mains constructed between June 1, 1994 and August 1, 1998 upon payment of \$35.20 per lineal foot of frontage.
- R25 - Owners of other property may be permitted to make connections to Plan 3 mains planned after August 1, 1998 upon payment of \$36.00 per lineal foot of frontage. The 10% penalty will be added if payment is not received within ninety (90) days of notification

Sec. 401-15. Plan 4. Construction Without Petition. Whenever the director determines it is in the best interests of the water distribution system to construct a water main extension, either within the city or outside of the city, in instances where in the director's opinion an owner or developer cannot be required to construct the extension, the director is authorized, with the approval of the city manager, to construct such extension without the filing of any petition therefore or the making of any advance payment or deposit. After the completion of any such extension, the director shall cause each premises abutting the street or road in which such extension is laid to be charged a deferred tap-in charge in an amount equal to that which it would have been charged under Plan 3, Section 401-14, except premises not likely to be subdivided and already served from a different water main. Owners of abutting premises for which a

Sec. 401-15. Plan 4. Construction Without Petition (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Section 401-32 water main agreement has been executed shall be required to pay their portion of the cost of construction. Owners of abutting premises may be permitted to make connections to Plan 4 water mains upon payment of the deferred tap-in charge, if any, in the manner provided under Plan 3, Section 401-14.

- R1 - Charges and billing shall be the same outside city limits.
- R2 - Charges to be paid for Plan 4 mains constructed prior to February 28, 1953 shall be \$1.10 per lineal foot of frontage.
- R3 - Charges to be paid for Plan 4 mains constructed between March 1, 1953 and August 2, 1957 shall be \$2.10 per lineal foot of frontage.
- R4 - Charges to be paid for Plan 4 mains constructed between August 3, 1957 and September 15, 1959 shall be \$4.40 per lineal foot of frontage.
- R5 - Charges to be paid for Plan 4 mains constructed between September 16, 1959 and January 1, 1961 shall be \$5.50 per lineal foot of frontage.
- R6 - Charges to be paid for Plan 4 mains constructed between January 1, 1961 and January 1, 1973 shall be \$6.60 per lineal foot of frontage.
- R7 - Charges to be paid for Plan 4 mains constructed between January 1, 1973 and January 1, 1976 shall be \$7.70 per lineal foot of frontage.
- R8 - Charges to be paid for Plan 4 mains constructed between January 1, 1976 and May 1, 1978 shall be \$8.80 per lineal foot of frontage.
- R9 - Charges to be paid for Plan 4 mains constructed between May 1, 1978 and May 1, 1980 shall be \$13.30 per lineal foot of frontage.
- R10 - Charges to be paid for Plan 4 mains constructed between May 1, 1980 and July 1, 1981 shall be \$15.00 per lineal foot of frontage.
- R11 - Charges to be paid for Plan 4 mains constructed between July 1, 1981 and September 1, 1982 shall be \$18.70 per lineal foot of frontage.
- R12 - Charges to be paid for Plan 4 mains constructed between September 1, 1982 and January 1, 1986 shall be \$19.80 per lineal foot of frontage.

Sec. 401-15. Plan 4. Construction Without Petition (Cont.)

- R13 - Charges to be paid for Plan 4 mains constructed between January 1, 1986 and August 1, 1987 shall be \$22.00 per lineal foot of frontage.
- R14 - Charges to be paid for Plan 4 mains constructed between August 1, 1987 and November 1, 1989 shall be \$24.20 per lineal foot of frontage.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

- R15 - Charges to be paid for Plan 4 mains constructed between November 1, 1989 and April 1, 1991 shall be \$28.60 per lineal foot of frontage.
- R16 - Charges to be paid for Plan 4 mains constructed between April 1, 1991 and April 1, 1993 shall be \$29.70 per lineal foot of frontage.
- R17 - Charges to be paid for Plan 4 mains constructed between April 1, 1993 and June 1, 1994 shall be \$33.00 per lineal foot of frontage.
- R18 - Charges to be paid for Plan 4 mains constructed between June 1, 1994 and August 1, 1998 shall be \$35.20 per lineal foot of frontage.
- R19 - Charges to be paid for Plan 4 mains planned after August 1, 1998 shall be \$36.00 per lineal foot of frontage. The 10% penalty will be added if payment is not received within ninety (90) days of notification.

Sec. 401-16. Plan 5, Assessment in Accordance With Revised Code. The owners of property to be served by a proposed water main extension may petition for the construction of such extension and the assessment of the cost thereof in accordance with the provisions of the Revised Code of Ohio.

Sec. 401-17. Property Owners not to be Relieved from Payment. No construction of water main extensions shall be proceeded with by the superintendent under Section 401-14 until the advance payments or deposits required by such section have been paid in full to the water department. If in any case, by reason of inadvertence or oversight, construction shall have been made without compliance with advance payment requirements, such inadvertence or oversight shall not relieve the benefited property owner from the obligation to pay the amount due. In such cases, no water tap connection shall be made or water service rendered unless and until the required payments or deposits are made.

Sec. 401-18. Size of Mains. The size of the mains to be used in the construction of extensions as provided for in Section 401-11 to 401-16, inclusive, shall in every case be determined by the superintendent.

When a developer or owner is installing a distribution main under any one of the above numbered plans, the superintendent may direct that the size be increased to 12-inch or 16-inch, if such would improve the system. The water works, in these cases, will pay a portion of the cost of installation, as follows:

Sec. 401-18. SIZE OF MAINS (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

- (a) Should a 12-inch water main be required, the water works' portion of the cost will be 40 percent of the reasonable and proper cost, as determined by the superintendent.
- (b) Should a 16-inch water main be required, the water works' portion of the cost will be 51 percent of the reasonable and proper cost, as determined by the superintendent.

R1 - All distribution mains shall be 8 inches or larger, except:

(a) A 6-inch water main may be installed where the length of the water main is less than 400 feet and where the water main is supplying no more than one fire hydrant. This exception applies to single family residential development only.

(b) Where short extensions are installed, connecting dead-ends of existing 6-inch mains.

R2 - In situations where the Water Works is able to supply pipe and related materials, the value of which are equal to its proportional contribution under (a) and (b) above, the Director may agree with the developer to supply such materials in lieu of a cash payment thereby discharging the Water Works' obligations under this Section.

Sec. 401-19. Mains in Private Property or Easements. No water main extension shall be constructed in private property or easements except:

- (a) When the planning commission or such other appropriate authority having jurisdiction approves plans for the construction of garden apartments, condominiums, and/or planned unit developments with access to the houses by means other than a dedicated street, a water main may be laid and maintained in an easement provided it first meets the requirements of the director.
- (b) Where the planning commission or such other appropriate public authority having jurisdiction has approved plans for a shopping center, a water main may be laid and maintained in an easement provided that it first meets the requirements of the director.

Sec. 401-19. Mains in Private Property or Easements (Cont.)

- (c) Where the planning commission or such other appropriate public authority having jurisdiction has approved plans for a residential subdivision with small frontages serving panhandle lots, a water main may be laid and maintained in an easement provided it first meets the requirements of the director.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

As used herein, the term "panhandle lot" shall mean a lot which utilizes a strip of ground, not a building site, to provide access to or legal frontage on a public street.

In addition to such other requirements as may be imposed or promulgated by the director from time to time by rule or regulation of the water works regarding water mains in panhandle lots, the minimum number of lots to be served, and the length and location of the water main shall be reviewed and determined by the director.

Installation under these exceptions must comply with all the regulations of Plan 2, Construction by Owner, Section 401-13.

R1 - The number of services required for garden apartments or shopping centers where a water main has been laid in an easement will be determined by the Superintendent.

Sec. 401-20. Mains in Unimproved Streets. No water main extension shall be laid in any unimproved street, whose profile is such that in case of the improvement of the street, it would be necessary to relay the main to conform to the established grade.

Sec. 401-21. Use of Plan 3 Prohibited Where Territory not Capable of Development. No water main extension shall be constructed under the provisions of Plan 3 where, owing to the topography of territory abutting the street, or to other conditions, further property development along such street is precluded or is unlikely.

Sec. 401-22. Record of Outstanding Charges to be Filed with the County Auditor. The superintendent shall maintain a record of all charges outstanding against premises abutting streets improved with water main extensions in accordance with Plan 3 or Plan 4. Such record shall be suitably indexed as to streets and parts of streets, and shall at all times be available for public inspection. With the consent of the county auditor of Hamilton county, a duplicate copy of such record shall be kept on file in the office of the county auditor for the convenience of title examiners and prospective purchasers of real estate. As charges are paid or as new charges are imposed, the necessary notations shall be made in the record by way of amendment or supplement. Such notations by

Sec. 401-22. Record of Outstanding Charges to be Filed with the County Auditor.
(Cont.)

way of amendment or supplement shall be copied into the county auditor's duplicate record at intervals of not more than 30 days. The record shall at all times be accompanied by a statement from the superintendent indicating the date to which the record has been carried.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-23. Cases of Inadvertence or Oversight. In the case of water main extensions completed on or after January 1, 1928, in accordance with rules and regulations of the department heretofore in effect, paralleling the provision of Plan 3 as provided for by Section 401-14, where, by inadvertence or oversight, water tap connections have been made to a building without the previous collection of the amounts chargeable in accordance with said plan, the superintendent shall bill the owner of such premises for the amounts due and payable. If the amount of such charges shall not be paid at or before the next regular water payment date occurring not less than 30 days after the date of such billing, the water supply for such premises shall be shut off as in the case of unpaid water bills and shall not be turned on again until the amount of such bill shall be paid or provided for. In the case of amounts in excess of \$25, the superintendent shall be authorized, on application of the property owner, to allow payment to be made in not more than four quarterly payments, no payment, however, except the final one, to be less than \$10.

DIVISION C:

SERVICE BRANCHES

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION C - SERVICE BRANCHES

Sec. 401-31. Application for Water Service Connection. Application for water service branches and water meter service may be made by any property owner or by his authorized agent, or by any certified person as defined in Section 401-41. Application for the service branch and the meter service must be made concurrently except as in (a), (b), and (c) below.

- (a) When it is necessary to install a water service branch to vacant property in order to precede the paving of a highway, the owner, the owner's agent, the political subdivision paving the street, or its agent, may make application for a water service branch only.
- (b) Where water service branches are to be installed to lots within a subdivision, prior to paving the proposed streets, or to lots within a proposed approved subdivision fronting on an existing street or roadway, applications may be made for service branches only, by the owner, the owner's agent, or the contractor.
- (c) Where a water service branch is to provide fire protection service only, the application for such service branch must be made by a certified person.

By making application for water service branches, or by using or permitting the use of such branches, the owner and any other person using his service branch agree to be bound by all the provisions of this chapter and all lawful rules and regulations of the department.

- R1 Application for meter service only, where a branch has been previously installed shall be accepted only from Certified Persons and shall be in accordance with current Standard Drawings and means for meter reading as required by the Director or authorized representative. Such application shall include the name and mailing address of the property owner responsible for payment of water bills.
- R2 Applications for service branch and meter service will not be accepted for more than one building at any one time when the applicant is other than a Certified Person. Additional applications will not be accepted from such person until the work is satisfactorily completed at the first location. When an owner or his agent applies for branch and meter service he must designate what Certified Person will perform the work before any work is done.
- R3 Applications for fire branches authorized by Section (c), above, must be accompanied by two (2) sets of plans or an approved digitized format illustrating the proposed fire protection system for initial review. Such applications must conform to rules under this section and under Section 401-117, current Standard Drawings, and means of meter reading as determined by

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-31. Application for Water Service Connection (Cont.)

the Director or authorized representative. Six (6) sets of plans illustrating the proposed fire protection system, with the approved revisions shown, shall also be provided by the time of the complete financial transaction associated with the service branch application.

- R4 Applications for branches to serve both fire protection and other purposes must meet the requirements for both types of service.
- R5 Where, in the opinion of the Superintendent, a main is inadequately supported by other mains, applications for domestic service equal to the size of the main will not be accepted.
- R6 In all cases, applications for service branches four (4) inches in size, or larger, shall be accompanied by two (2) sets of initial plans or an approved digitized format for review and information relative to the probable demands and shall conform to current Standard Drawings and means of meter reading as determined by the Director or authorized representative. Six (6) sets of plans illustrating the proposed water use, with the approved revisions shown, shall also be provided by the time of the complete financial transaction associated with the service branch application.
- R7 The exact location of a proposed service branch must be furnished by the applicant to the Water Works. When applying by mail, applications shall be accompanied by an accurate sketch. Measurements shall be taken from some permanent point in accordance with one of the approved methods for measurements for water service branches. To mark the exact location of a proposed service branch, the plumber must drive a stake (furnished by the Water Works) at the property line on the premises. If the inspector finds a discrepancy between the measurements, as given, and the stake, as driven, or if there is no stake on the premises, the installation will be postponed until the error is corrected.
- R8 Where the proposed installation is for commercial or industrial purposes and requires water for more than the necessary sanitary facilities for the occupants, the applicant must submit a complete set of plans, a statement of the industrial or commercial use intended, and the architect's recommendation for the size of branch and meter.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-31. Application for Water Service Connection (Cont.)

- R9 When applying for a service branch to a water main constructed in accordance with Plan 3 or Plan 4 (Sections 401-14 and 15), the applicant shall furnish the Water Works the correct lot and parcel number. Payment required for the main extension must be made before the application can be accepted.
- R10 A branch application, except as in A, B, and C, under Section 401-31, must be accompanied by payment for temporary use of water necessary in connection with construction of the building, in accordance with Division F of the Water Works Rules and Regulations.
- R11 Charges for a single branch installed by the Water Works, or authorized representatives and for blocks of branches in subdivisions will be published annually.
- R12 Failure to comply with the provisions of any of the rules covering applications for water service branches or proper site preparation for water service branch installation within 30 days of the date of application shall be just cause for cancellation of the application.

Branches in Subdivisions

- R13 Application for subdivision service branch installations must be made by the developer or a Certified Tapper.
- R14 The service branch performance and guarantee bond must have been posted before any service branch application will be accepted.
- R15 The applicant must submit three (3) prints of approved subdivision drawings, indicating the proposed lot layout and service branch location for each lot.
- R16 The applicant must submit duplicate copies of individual branch application forms indicating: (a) the lot number, (b) service branch size, (c) name of Certified Tapper (if known), and (d) approximate branch location. The installation of the branch at the proper location for each lot will remain the responsibility of the developer.

Sec. 401-32. Property Served Must Abut Roadway. It is the obligation of the owner desiring service to install distribution mains across all of the owner's abutting frontage, and, if necessary, to extend a distribution main to that frontage from an existing main.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-32. Property Served Must Abut Roadway (Cont.)

No service branch shall be installed to serve any premises unless the premises abuts a street or road in which a distribution main has been installed. And no service branch shall be installed to serve any premises if distribution mains have not been installed across all frontage of the premises abutting streets or roads, unless the owner of such premises has paid the owner's portion of the cost, as determined by the director, of extending a distribution main across the entire abutting frontage of the premises. Provided, however, if the owner executes the agreement required and described below, and:

(a) If the premises to be served abuts no street or road, then the director may permit the premises to be served by a service branch laid in a permanent easement satisfactory to the director permitting installation and maintenance of the branch, running from the premises to a street or road in which a distribution main has been installed; or

(b) If the premises to be served abuts a street or road in which distribution mains have been installed across part of but not the entire frontage of the premises; and, in the opinion of the director, it is not then feasible, or not in the best interests of the water distribution system, to extend water mains across the remaining abutting frontage of such premises, then the director may permit the premises to be served by a service branch from the main in the abutting frontage; or

(c) If the premises to be served abuts a street or road in which distribution mains have not been installed across any frontage of the premises, and, in the opinion of the director, it is not then feasible, or not in the best interests of the water distribution system, to extend distribution mains across any part of the frontage of the premises, then the director may permit the premises to be served by a service branch laid in a permanent easement satisfactory to the director, permitting installation and maintenance of the branch, running from the premises to a street or road in which a distribution main has been installed.

In each instance provided in (a), (b) and (c) above, the owner of the premises shall execute an agreement on behalf of himself, his or her heirs, successors and assigns, in the form prescribed by the director, which shall be recorded at the expense of the owner in the recorder's office of Hamilton county, and which shall provide:

- (1) That the owner shall within a reasonable time (no greater than 90 days) following written request of the director, construct a distribution main in all streets or roads upon which the premises abuts at the date of the agreement (or thereafter abuts, if there is no then existing abutting frontage), or pay his or her portion of the cost of such construction, as determined by the director, or, if sufficient in the view of the director, upon request of the proper governmental

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-32. Property Served Must Abut Roadway (Cont.)

authority join in a petition for construction of such water main on an assessment basis; and that if such petition is requested but construction does not result therefrom in a reasonable period of time (no greater than 180 days), then the director may require the owner to construct or pay for the construction of the required distribution mains;

- (2) That a failure of the owner of the premises to observe the terms of the agreement shall be grounds for the termination of water service; and
- (3) That in any instance where the owner is permitted service by a service branch laid in a permanent easement, if at some future time a distribution main is installed across abutting frontage of the premises, the owner shall at the owner's expense relocate the water meter and service branch to that abutting frontage in a manner approved by the director, within 90 days of notice by the director.

As used in this section, "frontage" includes all frontage of a premises abutting any street or road, including a limited access highway; an easement for ingress and egress or for utilities does not constitute "frontage" on a street or road.

Sec. 401-33. Installation of Service Branch. When a service branch is installed, the tap connection to the water main and so much of the branch as is within the highway to its property line shall be installed in accordance with (a) and (b) below:

- (a) The department shall install a service branch, except under (b) hereof, and the service branch shall remain the property of the department.
- (b) It shall be the obligation of every developer or subdivider whose development includes the extension of the Cincinnati water works system to provide a separate water branch for every lot or facility abutting proposed streets or rights-of-way within the development, which water service branch shall be installed from the water main to the right-of-way or property line and shall become the property of the department upon acceptance.

Any such developer or subdivider shall be responsible for the proper installation, altering or repairing of such service branches in accordance with the ordinances of the city of Cincinnati and the rules and regulations of the superintendent of water works, and shall furnish a bond indemnifying the city of Cincinnati for any loss it might sustain through the fault of the developer, the developer's agents or contractors, or for the failure of the developer's agents or contractors, to properly install, alter, repair, or connect such water service branches, or for failure to perform any other act in accordance with the ordinances of the city of Cincinnati and the rules and regulations of the superintendent of water works. The bond shall be in a form prescribed by the city solicitor and shall be signed by the developer and a corporate surety authorized to do business in the state of Ohio.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-33. Installation of Service Branch. (Cont.)

The bond shall be in an amount not less than the following:

\$5,000 for the installation, altering or repairing of 50 or less such branches.

\$6,000 for the installation, altering or repairing of 51 to 60 of such branches.

\$7,000 for the installation, altering or repairing of 61 to 70 of such branches.

\$1,000 for the installation, altering or repairing of each additional 10 or part thereof of such service branches.

No water service branch shall be used for water supply purposes without a water meter. Branches intended for fire protection purposes shall be subject to Division K of this chapter and any rules and regulations conformable thereto as may be promulgated by the superintendent.

- R1 Approved subdivisions may be developed, approved block or section at a time, and the requirements for branch installation refer to such approved block or section.
- R2 Not more than three months after submission of the contractor's performance bond and the letter of intent, required for the installation of the water main, the developer shall present a service branch performance and guarantee bond. The bond will assure the installation and maintenance of all the required service branches in the proposed subdivision, or approved block, in conformance with City of Cincinnati Specifications. The life of the bond shall be for two years from the installation of the last service branch.
- R3 In the event that a service branch has been installed inadvertently or where a service branch is found to be unnecessary, as a result of revised lot lines within a subdivision, it will be disconnected by the developer.
- R4 The bond shall provide that if the developer fails to complete his obligation for branches, the Water works will complete them at the expense of the bonding company.
- R5 All branches in a subdivision, or approved block, must be installed within six months of issue of permit.
- R6 No service installed may be put to use until all the branches between it and the source of water have been installed.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-33. Installation of Service Branch (Cont.)

- R7 A person, or an organization, must be certified to install service branches in private developments. Certification will be based on the Tapper's equipment and proven ability and workmanship to install service branches in a water main under pressure. A Certified Tapper may be qualified for one or more tap sizes, dependent upon equipment. Certification will be immediately revoked if the Certified Tapper fails to perform satisfactory work.
- R8 A Certified Tapper is required to post a renewable one thousand dollar (\$1,000) bond guaranteeing workmanship and materials. This bond will be renewed the first of each calendar year and will cover all sizes of services the Tapper is certified to install.
- R9 Materials and workmanship must comply with City of Cincinnati Specification No. 4-12-76, or the latest revision thereof.
- R10 INSPECTION. All water service branches and water service pipes shall be inspected and approved by an authorized Water Works inspector, from the main to, and including, the meter setting, in addition to any other inspection required by the plumbing or building codes. Failure to request Water Works inspection shall be sufficient cause to justify the Water Works in refusing water service for the branch. No work shall be covered until approved by the Water Works. Water Works inspection shall not relieve the plumber of any responsibility under these rules or for improper work.
- R11 The service branch will be inspected from the property line to the meter setting, only after an application for the branch has been accepted.
- R12 That part of the service pipe beyond the curb stop and to the meter shall have a minimal number of fittings based on distance from the property line to the meter and the standard lengths of pipe available. Types of material, types of joints, and requirements for hydrostatic testing shall comply with Standard Drawings.
- R13 In situations where the developer of a proposed subdivision is required to install a new water main within an existing non-state controlled right-of-way to meet CWW water service requirements for proposed subdivision lots whose frontage is on said existing right-of-way, the developer's CWW certified tap contractor can install the CWW approved water taps with the following conditions:
- A. A separate developer's bond, in the same manner as described in part (b) above, must be posted by the developer for the installation of all CWW approved water taps for the proposed subdivision lots to be installed to the new water main in said existing right-of-way (street).

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-33. Installation of Service Branch (Cont.)

- B. CWW subdivision approved water taps approved under this rule can be sold at current subdivision prices, subject to the developer meeting all CWW bonding requirements and the requirements of the public authority that control said existing right-of-way, including any guarantee and performance bonding requirements for the existing right-of-way (street) as required by the public authority.
 - C. The developer of the proposed subdivision shall have thirty (30) days from the date the new water main is placed into service and accepted by the CWW Engineering Inspection Section, to procure and obtain street opening permits for said water taps for all tap locations from the appropriate public authority that controls the existing right-of-way. The developer's CWW certified tap contractor shall install all taps with CWW inspection within thirty (30) days after the date of approval of the street opening permits from the public authority.
- R14 When a proposed water main is to be extended in an existing right-of-way, as described in 401-33, R13, the developer may install additional water taps, at the subdivision rate, subject to CWW approval, for existing lots or parcels that are not within the developer's proposed subdivision with the following conditions.
- A. Only existing lots or parcels that are adjacent or connected to the proposed subdivision lots that have frontage on said proposed water main in the existing right-of-way are acceptable under this rule.
 - B. The developer shall meet all the requirements of Section 401-32 and must request and identify all lots or parcels where he desires to install water taps, during the CWW subdivision review process. As a result, CWW will determine and accept which water taps to said lots or parcels are to be installed by the developer's contractor under this rule prior to final approval of the water main extension (WSL) plans.
 - C. All CWW accepted water taps must be included on the developers subdivision water tap plan. The developer must further meet the requirements pertaining to bonding as described in Section 401-33 (b) and 401-33, R13, prior to purchasing said water taps.
 - D. Any developer requested water taps on said proposed water main within an existing right-of-way that are not accepted by CWW, as stated above, will be installed by the Department as described under Section 401-33 (a).

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-33. Installation of Service Branch (Cont.)

- R15 In situations where the building to be served is in excess of 350 feet from the curb stop, the branch size is equal to or less than two (2) inches and an Electronic Meter Reading System meter is installed, the size of the service branch between the curb stop and the meter setting will be determined by the certified person for the purpose of minimizing friction loss. Materials shall comply with Water Works Standard Drawings. The branch size must be increased beyond the curb stop and within six (6) inches of the curb stop. The service branch size in this situation must decrease in size within four (4) inches of the meter setting inlet valve. The fittings used to increase or decrease the size of the service branch may be a "silver solder" or flair joint. Only complete rolls of copper pipe in the specific sizes are to be used. Partial rolls shall only be used to complete the final section of service branch from the last fitting to the meter setting.
- A. All couplings between the increased fitting, beyond the curb stop, and the meter setting must be silver solder or flared fitting. All flared fittings must comply to the brass material standards of AWWA C-800 and ASTM B-62.
- R16 Meters must be set in outside settings conforming to Standard Drawings and current Rules and Regulations.
- R17 Meters set in outside meter settings in which the distance from the premises to the curb stop is greater than 350 feet shall be set within no less than 15 feet of the premises and no more than 50, and shall conform to Standard Drawings and Section 401-51.

Sec. 401-34. Building Permits Not to be Approved Unless City Water is Available. No permit for the erection of a building intended for human occupancy shall be approved by the building commissioner until the water works has certified the availability of city water, or the commissioner of health has approved some other source.

- R1 - Water will be considered available when there is a main which the owner may legally tap in accordance with Section 401-32, or arrangements have been completed for the installation of a main under Sections 401-12, 401-13, 401-14, 401-15 and/or 401-16.

Sec. 401-35. Requirements of Service Branches and Meters. The superintendent shall establish minimum requirements for service branches and meters. Applications for water service must include full information as to the size, occupancy, and commercial or manufacturing

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-35. Requirements of Service Branches and Meters. (Cont.)

processes to be served, except in the case of branches to vacant property preceding highway improvements.

- R1 - When making application for an additional water service branch, or for a branch 4 inches in size or larger, the applicant shall submit a complete explanation of its intended use and probable demand for water.
- R2 - Each application must be accompanied with a building permit or plumbing permit from the political subdivision having jurisdiction. The permit must show the cubic content of the building.
- R3 - The applicant must state the purpose for which the branch and meter are intended, the proposed occupancy of the premises, and in the case of domestic services, the number of living units therein.
- R4 - The following are minimum branch and meter requirements for buildings for residential use.

	Tap Size	Meter Size
1 family building	3/4-inch	5/8-inch
2 family building	3/4-inch	3/4-inch
3 family building	1-inch	3/4-inch
4 and 5 families	1-inch	1-inch
6 thru 8 families	1-1/2-inch	1-1/2-inch
9 thru 12 families	2-inch	1-1/2-inch
13 thru 20 families	2-inch	2-inch
21 thru 50 families	4-inch	3-inch
51 thru 115 families	4-inch	4-inch
116 thru 250 families	6-inch	6-inch
More than 250 families	8-inch	8-inch

- R5 - In the case of buildings for combined domestic and business use, and such business uses which require water for sanitary purposes only, each two sets of sanitary facilities will be counted as one family.
- R6 - The proper size branch and meter for motels and hotels will be determined by taking 50% of the proposed occupancy and applying the standards established in Rule 4. Trailer parks will be determined on the basis of 75% of the proposed occupancy.
- R7 - Service branches existing, or applied for prior to February 15, 1960, may be used provided:

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-35. Requirements of Service Branches and Meters (Cont.)

- A. They are not more than one size smaller than that stipulated in Rule 4.
 - B. All piping from the property line, to and including the meter, shall be of the size specified in Rule 4.
 - C. The applicant assumes all responsibility for the volume of water obtained from any branch which is smaller than that required in Rule 4, and also acknowledges the limits of responsibility of the Water Works relative to maintenance or repair of the original branch.
 - D. The applicant signs a form, provided by the Water Works, which stipulates the above conditions under which an existing service branch was used.
- R8 - The size of service branches to be installed under exceptions A and B, under Section 401-31, shall be governed by the possible use permitted by the applicable zoning.
- R9 - For special purpose apartment projects, such as those intended for the elderly, containing one and two room efficiency units, with the occupancy rigidly controlled, and equipped with only one set of kitchen and bath fixtures, the size of the branch and meter may be determined by taking 75% of the proposed occupancy and applying the standard established in Section 401-35, R4. Final determination for qualification under this rule shall be made by the Superintendent upon review of the individual project plans and design criteria.

Sec. 401-36. Water Branches Not to be Laid in Sewer Trenches. No water service branch shall at any time be laid in the same trench with a sewer connection. In extreme cases, shelving will be permitted, in which cases, the shelf will be 18 inches wide and the water service pipe so staked as to prevent its slipping into the sewer trench.

- R1 - The provisions of this section and applicable sections of the plumbing code shall apply to all water service branches and water service pipe.
- R2 - The minimum horizontal distance between water branches and any other utility shall be 24 inches.
- R3 - The minimum vertical distance between water branches and any other utility shall be 6 inches.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-37. Interconnected Service Branches. When city water is supplied through two or more interconnecting service branches, each branch shall be separately metered and each branch shall be equipped with a check valve which is installed to prevent the water from flowing back into the city mains. If the interconnected services are for fire protection only, each branch shall be equipped with a separate detector check assembly. If a fire protection service is interconnected with a branch supplying domestic or commercial water, each service shall be fully metered and equipped with an approved check valve.

Where an area is supplied with water obtained from a source other than that provided by the Cincinnati water works, the two supplies may not be interconnected unless the method of connection has been approved by the Cincinnati water works and the Ohio state Environmental Protection Agency.

Sec. 401-38. Replacement and Repair of Service Branches. Where a service branch is installed, the department shall repair and maintain it or replace it with a branch of the same size, without charge, from the main to and including:

- (a) The valve, where the valve is not beneath the street paving or the street curb.
- (b) To a point behind the curb or beyond the edge of the street paving where the valve is in the paving.
- (c) To a point on the private property side of a retaining wall where such retaining wall has been installed by a public entity as part of a highway improvement.

A property owner desiring a service branch of a size different from the existing branch shall make application and pay for it in the same manner as for any other new water service connection.

- R1 In situations where the Department has permitted the use of an existing branch larger than that required for the size meter in use, maintenance or replacement will be performed on the basis of the size of the meter in use.
- R2 When an owner or tenant elects to use a water branch for service other than that for which the original installation was made, the Water Works will assume no responsibility for the amount of water obtained through the old branch. If, for any reason, the service proves inadequate, it shall be the responsibility of the owner to make application for a NEW service, of the proper size, in accordance with Water Works Rules and Regulations and subject to Water Works approval.
- R3 Where a reduction in the size of a meter had been authorized and a larger meter is now requested by the customer, all references to the meter shall be in accordance with Section 401-51 and Standard Drawings.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-39. Maintenance of Service Branch by Property Owner. That portion of a water branch from points described in (a), (b), and (c) of Section 401-38 into the premises served, shall be maintained in proper condition by the owner. Failure to repair a leak or leaks in the time allotted on notice shall be sufficient cause to justify the department in discontinuing the service. When service has been discontinued for failure to repair leaks, it will not be restored until the department has been notified and is satisfied, after inspection, that repairs have been properly completed.

- R1 Notice to repair leaks, when served by the Cincinnati Water Works, will be left on the premises or delivered to the address listed with the Utility for use in mailing water bills for the premises served. Failure to receive a notice will not relieve property owners or their authorized agents from responsibility to make repairs in the time allotted.
- R2 Repeated breaks in the service pipe beyond the curb stop and to the meter will be sufficient cause to require its complete renewal in accordance with current Standard Drawings.
- R3 The Water Works will provide emergency service to thaw frozen service branches from the curb stop to the building, provided:
 - A. Where the meter is inside the building, the owner shall have the water line disconnected just inside the building, immediately before the meter, so the electric current may not pass into the inside piping. The Water Works shall have access to the building to verify that the connection at the meter is broken, and any Electronic Meter Reading System appurtenances may be disconnected by the Water Works.
 - B. Where the meter is outside, the owner shall have the water line disconnected just inside the building so the electric current may not pass into the inside piping. The Water Works will be responsible for removal of the meter and any Electronic Meter Reading System appurtenances disconnected.
 - C. Failure to provide access to the inside of the building when the meter is inside shall be reason to cancel a thaw service request.
- R4 When a service branch has been thawed on two separate occasions within a three-year period, such condition will no longer be considered an emergency and this service will not be provided.
- R5 Application for such service must be in writing, signed by the owner or occupant of the premises.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-39. Maintenance of Service Branch by Property Owner. (Cont.)

- R6 The charge for thawing of all water service branches shall be at a rate established and published periodically by the Department.
- R7 Water Service Branch referred to in Section 401-39 and other references within Section 401 of the Cincinnati Municipal Code means the water service line from the corporation stop to the meter and all of the piping, valves, fittings, and meter housing required for the setting of the water meter and backflow preventer.

Sec. 401-40. Disconnection of Service Branch by Department. The Department is authorized to disconnect a service branch from the water main and remove the water meter:

- (a) Upon application by the owner or authorized agent when use of the service branch is no longer required;
- (b) When a water bill is delinquent and records indicate that the service branch has been unused for at least one year;
- (c) When after shut-off of water service by the department for nonpayment of a water bill or other authorized reason, the water service is recommenced by private action without authorization from the department, for the benefit of the property served;
- (d) When a fire protection service branch has no piping or equipment connected thereto which could make its use possible, and has been unused for at least one year;
- (e) When conditions render impractical any future use of an existing unused service branch;
- (f) When a non-copper service branch installed before 1928 has never been used; or
- (g) When the director determines that disconnection is otherwise necessary physically to protect the water system or prevent theft or unauthorized use of water.

Disconnections in the instances specified in paragraphs (b) through (g), above, shall only be made after giving the owner at least seven days advance written notice, and if the property is known to be occupied by other than the owner and owner's family, after posting notice conspicuously upon the property of the department's intent to disconnect, at least seven days in advance of disconnection.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-40. Disconnection of Service Branch by Department (Cont.)

Cost of disconnection shall be charged to the owner, in accordance with department rules and regulations, only in the instance specified in paragraph (c), above, or when disconnection is otherwise necessary to prevent theft or unauthorized use of water.

Water service may be re-established for a service branch disconnected or ordered to be disconnected only upon conformance with all current regulations and specifications for new service, including modifications to the branch if necessary, and including payment of charges for a new branch. Provided, that for a service branch ordered to be disconnected but not yet physically disconnected, otherwise conforming to all regulations and specifications, the service branch may be re-established upon payment of one-half of the charge for a new branch.

- R1 When the use of a water service branch is no longer required, the owner of the premises served, or his authorized agent, may apply to the Commercial Services Division for its disconnection from the water main, without charge, but must provide access to the building for the Department to remove the water meter.
- R2 When an application for disconnection of a service branch is signed by the owner of the property or an authorized agent of the property owner, and access to the building for the Department to remove the water meter has been provided, and the meter removed, the billing of the account shall be suspended and the service branch shall no longer be available for water service.
- R3 If an owner of the property or an authorized agent of the property owner makes application for water service before the existing service branch is physically disconnected, the applicant may seek re-establishment of the existing service branch if the service branch meets current specifications and regulations. If the Director or authorized representative decides the existing water service branch does meet all current regulations and standards, the service branch may be re-established. Charges for re-establishment will be one-half (1/2) of the current charge for installation of a new service branch. Meters installed on branches that have been re-established as described above shall be installed by a Certified Person in accordance with current Standard Drawings and current means of meter reading as determined by the Director or authorized representative.
- R4 Re-establishment of any service branch after the authorization to disconnect has been signed, regardless of the existing service branch being physically disconnected, shall be denied if the service branch material is lead.
- R5 A service branch two (2) inches or smaller shall be renewed completely from the curb stop to the meter setting if more than 50 percent of the service pipe between those two points is being replaced or whenever any portion of a lead service branch is being replaced. An approved dielectric insulating coupling

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-40. Disconnection of Service Branch by Department (Cont.)

shall be used at the curb stop and be installed not more than six (6) inches from the curb stop on the property owner's side of the curb stop unless an approved lead to copper adapter is also used, in which case the lead to copper adapter shall be installed within six (6) inches of the curb stop on the property owner's side of the curb stop and the dielectric insulating coupling be installed immediately subsequent. An approved curb box shall also be installed.

- R6 A replacement branch must be renewed and inspected by the Water Works from the curb stop to the meter and be in accordance with current Standard Drawings. Such renewed service branch shall be installed by a Certified Person.

DIVISION D:

**CONNECTIONS, PLUMBERS'
REGULATIONS**

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION D - CONNECTIONS, PLUMBERS' REGULATIONS

Sec. 401-41. Only Certified Persons to Install Service Branch from Property Line to and Including Meter. No person other than a person holding a current certificate of competency issued by the superintendent of water works as hereinafter provided, or a person in the employ or working under the supervision of such a certified person shall install, alter, repair, or make any connection with any water service branch or water supply pipe, or operate any curb cock or install any water meter.

Any person desiring a certificate of competency shall apply therefor to the superintendent of water works on a form furnished by the superintendent, and shall be examined by the superintendent of water works, or a designated representative, to determine whether said person is competent to:

- (a) Install the service branch from the property line to, and including the water meter, or
- (b) Install fire protective systems from the property line to and including all necessary appurtenances.

Persons may qualify in either, or both, of these categories.

Part of such examination for (a) above must include the holding of a master plumber's license for any political subdivision in which the applicant desires to do business, if such political subdivision requires a license for such work.

If upon such examination the person is determined to be competent, a certificate of competency shall, upon furnishing the bond hereinafter required, be issued in the name of the superintendent, which certificate shall be good until revoked or voluntarily surrendered.

Before any certificate of competency is issued to any person pursuant to this section, such person shall furnish to the superintendent of water works a bond in the penal sum of \$1,000.00 indemnifying the city of Cincinnati for any loss it might sustain through the fault of the person to be certified, or such person, agent or employee in installing or repairing any water service branch or meter. The bond shall be in a form prescribed by the city solicitor and shall be signed by the applicant and a corporate surety authorized to do business in the state of Ohio.

Nothing contained in this section shall be construed to authorize any person to whom a certificate of competency is issued to perform any other plumbing work in any part of Hamilton county, including the city of Cincinnati, without first complying with the governmental regulations, if any, in effect in such part of the county.

A certificate of competency issued to any person pursuant to this section may be revoked if such person or any of such person's employees or agents violates any of the provisions of this chapter, any provision of the rules and regulations of the superintendent of water works, or fails to repair

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-41 Only Certified Persons to Install Service Branch from Property Line to and Including Meter (Cont.)

or restore, or pay for the repair or restoration of any damage done to or defective work done on the Cincinnati water works system by such person or such person's agents or employees in the carrying out of any work for which a certificate of competency is required. Where a certificate of competency has been revoked, a new one shall not be reissued for 90 days, and, if the cause for revocation included the failure of the certified person to correct or repair any damages to or defective work on the system, a new certificate shall not be issued until such damages or defective work is repaired.

- R1 Failure to correct violations shall result in suspension (rather than revocation) of this certificate of competency. Certified Persons under suspension will not be permitted to perform any of the work for which they have been certified other than correction of the work for which they are under suspension.
- R2 Certified Persons shall be required to correct violations promptly. Failure to correct violations will result in the notification of the Certified Person's bonding company.
- R3 Repeated violations shall result in revocation of the certificate of competency as a Certified Person.
- R4 Certified persons holding a certificate of competency shall be authorized to turn water on or off at the curb stop and to remove or reinstall a water meter in the course of normal plumbing operations, provided such person who has turned water on or off, removed or reinstalled a meter, shall immediately notify the Water Works of such action, and report the meter reading.
- R5 Any certified person making application on behalf of or allowing work to be performed on service under the authority of the Water Works by a Certified Person under suspension may also be subject to suspension.
- R6 Any Certified Person known to have or having outstanding violations of other City agency Rules and Regulations may be denied Certified Persons' privileges.

Sec. 401-42. Unauthorized Water Connection Prohibited. No person other than an employee or other authorized agent of the department shall open any street, lane, alley or other public place for water supply purposes, tap any pipe, or make attachments to any water pipe under the control of the Cincinnati water works.

No person shall obtain water from a fire hydrant except:

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-42. Unauthorized Water Connection Prohibited. (Cont.)

- (a) Public employees doing so for purposes specifically provided in this code, and
- (b) Persons having obtained a permit for temporary use as specified in Section 401-61 of this code.

Sec. 401-43. Buildings to Have Separate Meters. No person shall connect water into more than one building from one meter, except where such installation is determined to be for a single purpose in the best interests of the system, and where such exceptions are clearly defined in the rules promulgated by the superintendent.

- R1 - Where real estate premises constituting a unified service area are owned by a single property owner and all buildings are occupied by a single commercial or industrial endeavor, one meter may be used to serve the entire premises.
- R2 - Where real estate premises are owned by a single property owner and include one dwelling occupied by that owner, and all other buildings are occupied by a single commercial or industrial endeavor, one meter may be used to serve the dwelling, with one additional meter serving the remaining buildings.
- R3 - Where real estate premises are owned by a single property owner and constitute garden apartments approved by the Planning Commission and the political subdivision having jurisdiction, and where it is impractical to provide an easement for a water main within the area, as provided for in Section 401-19, and where the property cannot be divided for sale, the premises may be served by fewer meters than the number of buildings.
- R4 - Where the Planning Commission and the political subdivision having jurisdiction have approved a shopping center, and where it is impractical to provide an easement for a water main within the area, as provided for in Sec. 401-19, the shopping center may be served by a single meter.

Sec. 401-44 Connecting Unused Pipes or Altering Existing Pipes. No plumber or other person shall make any attachments to an old pipe or other fixture which has been shut off by the rules of the water works, or which is out of use, without having first obtained a permit to do so, nor shall any plumber or other person make any alteration in any way of the conduit pipes or other fixtures attached to the water works, so as to conduct water into adjoining premises, without a written permit to do so, signed by the proper officer of the water works.

DIVISION E:

METERS

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION E - METERS

Sec. 401-51. Meters Required. All water service branches shall be metered.

- R1 The Director or authorized representative shall determine the means of reading for all metered services including new as well as existing service.
- R2 All water meter service including new as well as existing service that has been determined to be read by telephone shall provide to the Water Works the current telephone number of the premises served, as well as provide access and permission for connection to the telephone wiring beyond the telephone companies' authority for the purpose of reading as a condition of service.
- R3 Electronic blocking by the property owner or tenant by the use of any telephone attribute for the purpose of blocking telephone access to the electronic meter reading unit shall result in termination of the water service.
- R4 All new meters required under Section 401-38, Rules 2 & 3, shall be electronic meter reading unit type meters of the current technology as determined by the Director or authorized representative.
- R5 Where a reduction in the size of a meter had been authorized and a larger meter is now requested by the property owner as stated in Section 401-38, Rule 3, the Department will permit the installation of a larger meter only after receipt of written request by the property owner or authorized agent, approval by the Director or authorized representative and the difference in the service charges between the existing meter and the proposed electronic meter reading unit meter has been paid. Charges will be based upon the rates in effect at the time of the proposed increase in size.
- R6 Failure to adhere to or comply with the requirements as described within Section 401-51 Rules R1, R2, & R5 shall require a special meter reading service and charge as described in Section 401-57, Rule R2. Failure to provide access for the special reading service may result in termination of water service. Such terminated water service shall remain off until access to the telephone system, the telephone number and permission to connect to the telephone wiring is provided.

Sec. 401-52. Number of Meters. The supply of water from the service connection may be by one or more meters. When more than one meter is used, they shall be set in an area not under the control of any tenant or owner and accessible to the water works at all times. The service charge for each meter shall be based on the size of each meter, as provided for in this chapter, except that in all cases, the meter or meters must satisfy the minimum requirements for service

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-52. Number of Meters (Cont.)

branches and meters, as provided for by Section 401-35, herein, and each separate service shall be subject to the same rules and regulations as a service where one branch serves a single meter.

R1 - Meter readings shall be used to calculate charges. However, the Water Works shall be authorized to use other means to estimate usage when it is apparent that a meter, remote reading register, an electronic meter reading unit (EMR), or other such devices have not been operating properly, or have been removed. In the instance of a defectively slow or stopped outside reading device of a remote reading register, the inside meter register shall be used to determine actual water usage and charges whenever discrepancies are detected.

(a) The Water Works shall not charge its customers being served by a meter for water consumed in excess of water usage registered on a defectively slow or stopped meter beyond 12 months prior to the current billing period or beyond 12 months prior to the last meter reading where access to the said meter was precluded by acts of the customer, whichever is longer. Any charges levied for any billing period shall not be less than the charges otherwise applicable under these ordinances and regulations.

(b) Notwithstanding the provisions of Rule 1 set forth herein above, in the instance of a defectively slow or stopped outside reading device of a remote reading register, the Water Works shall not charge for estimated usage for beyond 12 months prior to the current billing period or beyond 12 months prior to the last meter reading where access to the said meter was precluded by acts of the customer, whichever is longer. Any charge levied for any billing period shall not be less than the charges otherwise applicable under these ordinances and regulations.

(c) A defectively slow or stopped meter, remote reading register, or EMR shall be defined as a meter, remote reading register or EMR which, as a result of ordinary wear and usage, fails to accurately measure the actual water usage at the premises, and registers as a result thereof a usage less than the actual water usage. Specifically excluded from this definition are meters, remote reading registers, or EMR which are slow or stopped resulting from damages originated or caused by the property owner or occupant of the premises being served or resulting from the negligence of the property owner or occupant or acts of vandalism not under the control of the Cincinnati Water Works.

R2 Meters set inside a building in manifold shall each be set in accordance with Water Works Standard Drawings. Each such meter shall have its own curb stop and curb box.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-52. Number of Meters (Cont.)

- R3 Meters set outside the building in manifold shall be set in individual frost-proof boxes in accordance with Water Works Standards.
- R4 Meters set outside a building in manifold shall each have the inlet valve equipped with padlock wings. Each such meter shall have its own curb stop and curb box.
- R5 Where a reduction in the size of a meter has been approved for a meter in manifold, the property owner will have a Certified Person make a no-charge application for the smaller meter service. The Certified Person will then install the smaller meter in accordance with current Standard Drawings, and means of reading as determined by the Director or authorized representative and return the larger meter, undamaged, to the Water Works.
- R6 Meters may not be placed in manifold unless the total of such meters satisfies the minimum requirements determined by the size of the service branch being utilized.
- R7 Once a meter has been placed in manifold it may not be removed unless the remaining meter, or meters, satisfy the minimum requirements for service branches and meters and a service charge must be paid on the removed meter, or meters, until such minimum requirements have been completely met.
- R8 All rules which apply to the billing and collecting regardless of the meter types and reading method for individual service shall apply to every meter in manifold.
- R9 An account served by a meter set in manifold shall be considered active until the authorization form to discontinue the account has been signed by the property owner or authorized agent and returned to the Water Works and the inlet valve removed and capped or the individual curb stop is turned to the off position, and the meter shall be returned to the Water Works, undamaged. Such accounts shall be reactivated when it has been determined that the meter was returned to the Water Works or when a service charge for the meter, as in a new service, has been paid and all meters served by that branch have been installed in accordance with current Standard Drawings.
- R10 When a property owner desires to install a meter for private purposes, the Water Works may sell a meter at the current published price. Such meters shall carry no warranty.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-53. Application for Meter. When it is necessary to install a meter or meters on an existing service branch which has never been metered the application must be made by a certified person. All meters shall remain the property of the department. After a meter has been installed and placed in service, it shall be fully maintained in proper condition by the department without charge, except that in the case of damage by freezing, hot water, or other neglect, a charge as determined by the superintendent shall be made.

- R1 - Application for meter service shall be made at the time application is made for the service branch, except as provided under Sections 401-31 and 401-51.
- R2 - Minimum meter sizes will be in accordance with Section 401-35, Rules 4 and 7, except, where a one-family building is equipped with water-cooled air conditioning or refrigeration, the minimum meter size will be 3/4".
- R3 - No application for meter service will be accepted unless the Certified Person presents a building permit and/or a plumbing permit which indicates the cubic content and proposed occupancy of the premises.
- R4 - When the occupancy or use of a premises or service branch changes in a manner other than because of vacancy or nonuse, or the original installation was obviously too large, so that a smaller meter will suffice, the owner, or his agent, may apply for smaller meter service, but not smaller than 5/8". After obtaining authorization from the Water Works to use a smaller meter, the owner will have a Certified Person make a no-charge application for the smaller meter service. The Certified Person will then install the smaller meter in accordance with current specifications and return the larger meter, undamaged, to the Water Works.
- R5 - Should it become necessary to increase the size of meter service, it shall be done in the same manner as new meter service, except that the owner, or his agent, must return the smaller meter to the Water Works. The owner will be credited with the cost of the smaller meter service less 10 per cent of such costs for each year, or part of a year, that the meter was in service.

When the increase in the size of meter service involves the removing of meters in manifold, the credit will be computed on all meters removed except that in no case may the credit exceed the cost of the increased meter service.

- R6 - The charge for new meter service will be published annually and furnished upon request.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-53. Application for Meter. (Cont.)

- R7 - Charges for meter replacement necessitated by freezing, hot water damage, vandalism or other neglect shall be based on the costs to the Cincinnati Water Works to replace the meter. It shall be the Water Works' discretion whether to replace or repair the meter. These costs shall be determined by the Director and published annually.
- R8 - If it becomes necessary to install a new service branch into a building which is already being served, and the meter currently in use is the proper size for the proposed new use, it may be transferred to the new branch, provided, (1) an order is signed authorizing Water Works to disconnect the old service branch, and (2) the meter is returned to the Water Works so that it may be renovated, free of charge, and the number changed to correspond to that of the new service branch.
- R9 - Maintenance of the water meter does not include maintenance of the setting or the box in which it is installed, which are the responsibility of the property owner.

Sec. 401-54. Setting of Meters. Meters shall be installed on water service branches as soon as practical after installation of the branch, and in every case prior to the final inspection required by the building code having jurisdiction. Meters shall be properly set in accordance with the specifications of the superintendent in a convenient location readily accessible for reading and maintenance and shall be properly protected from damage.

- R1 - Meters shall be installed in accordance with Water Works Standard Drawings. Additionally, meters larger in size than 2 inches shall be installed in accordance with specific requirements determined by the Water Works to meet individual circumstances. Further, all meter settings shall also comply with the requirements set out in Rule 5 below.
- R2 - Meters shall be installed only by employees of the Water Works or by Certified Persons registered with the Water Works in accordance with Section 401-41.
- R3 - Meters shall be set within ninety (90) days of the time the Certified Person calls for inspection of the service branch, or upon completion of the plumbing work, whichever occurs first.
- R4 - All meter installations must be approved by the Cincinnati Water Works for purposes of reading, inspecting, and maintenance operations. The Certified Person installing the meter shall be responsible for Cincinnati Water Works inspection and approval of the meter setting. The property owner shall be

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-54. Setting of Meters. (Cont.)

R4 - (Cont.)

responsible for Cincinnati Water Works approval of any additions, alterations and adjustments to the area surrounding the meter. Certified Persons installing the meter will be expected to acquaint themselves with the plans of other trades at work on the premises, so that the meter location will not be obstructed later by the installation of pipes, valves, hot water heaters, furnaces, traps, partitions, sliding doors, shelves, etc.

R5 - Meters 2 inches in size, or smaller, installed inside, shall be set not less than 12 inches or more than 36 inches from the floor, measured to the bottom of the pipe entering and leaving the meter. Such meters shall have a minimum clearance of 6 inches from any wall or appurtenance to the meter. Meters larger than 2 inches shall be not less than 18 inches or more than 30 inches from the floor measured to the bottom of the pipe entering and leaving the meter. Such meters shall have a minimum clearance of 24 inches from any wall or appurtenance to the meter. All meter settings shall begin no more than 12 inches from the point of entry of the branch inside the premises. Meters larger than 2 inches in size, all dual services and fire protection services shall be installed in accordance with regulations governing pit settings whether or not the installation is made in a pit.

R6 - Any Certified Person installing a meter must immediately notify the Water Works of such installation by mailing the card furnished by the Water Works for that purpose.

R7 - Meters shall be installed in approved settings with approved valves in accordance with Water Works Standards.

R8 - In all meter settings, except manifold and yoke, the inlet meter valve must be the same size as the branch. The outlet valve may be the same size as the inside piping but in no case smaller than the meter.

R9 - There shall be no appurtenances installed on any service branch between the curb box and the meter. Any necessary controls, such as pressure regulators, or check valves, must be installed on the outlet, or house side of the meter, but may be installed between the meter and the outlet valve, if the regulator is at least as large as the service branch. When a 1-1/2", or larger, regulator is required, a 3/4" regulator must also be installed as a by-pass. A 4", or larger, regulator may necessitate more than one additional by-bass regulator.

R10- Water meters shall not be installed in any area subject to fumes, gases, noxious vapor, steam, or other agents which may impair the safety or health of meter readers or maintenance men.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-54. Setting of Meters. (Cont.)

- R11- Any alteration to existing service branches or meter settings shall be done by Certified Persons only, and shall conform to specifications in effect at the time of the change. Certified Persons making alterations on service branch or meter settings must notify Water Works of alterations.
- R12- Meters up to and including 2 inches in size, installed outside or in a manifold setting, shall be equipped with padlock wings on the inlet valve.
- R13- Meters in meter boxes shall be installed at right angles to the water main or in a practical position as determined by the Department.
- R14- When a meter is being used to measure greater volumes of water than its designed operating capacity, as evidenced by high readings, or frequent repairs, the owner will be required to pay for, and install, meter service large enough, according to Water Works Standards, to properly provide the necessary service.
- R15- In areas determined by the Director to be suitable for telephone-read meters, such meters shall be installed in accordance with Water Works' Standard Drawings.

Sec. 401-55. Distance from Highway. Where meters are authorized to be set outside, the meters shall be set as close to the property line as practical in a frost-proof pit or box of approved type. The water works shall determine whether the location is appropriate.

- R1 - The pit or box in which a meter is set outside must be properly maintained by the owner and must be readily accessible for meter reading and meter maintenance.

Sec. 401-56. Unlawful Removal of Meter. No person except an authorized water works employee shall remove a water meter without the permission of the superintendent. Where a meter is found to have been unlawfully removed, the water shall be shut off forthwith and proper charges made for estimated amount of water used. The water shall not be turned on again until the meter is reinstalled or a payment equal to the cost of the meter, testing, and installation is paid to the Cincinnati water works.

- R1 - Any certified person may remove and reinstall a water meter in the course of normal plumbing operation, providing that he previously notifies the Water Works of such action, giving the meter number, reading of the meter, and reason for removal.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-56. Unlawful Removal of Meter. (Cont.)

- R2 - If a seal is broken by a certified person in the course of normal plumbing operations, he must immediately notify the Water Works so that the seal may be replaced.
- R3 - When a seal is found broken, the Water Works shall be authorized to remove and test the meter, and assess charges as provided by Section 401-58.

Sec. 401-57. Department to Have Access to Meter. Authorized employees of the department shall have the right, at any reasonable time, to enter any premises where a meter is installed, for the purpose of reading, examining or testing the same on the premises, or for the purpose of removing the same from the premises for examination, testing, repair or replacement.

- R1 Ample clear space shall be provided and always kept available at every water meter for purposes of reading or maintenance. Inability of employees to readily enter and safely gain access to the meter or backflow device shall be sufficient cause for the Water Works to discontinue service.
- R2 Failure or refusal by a customer to make suitable arrangements for the water meter to be read at regularly scheduled meter reading times, regardless of the method by which the meter is read, shall be sufficient cause for the Water Works to discontinue service. Service will not be restored until a meter reading is obtained notwithstanding other applicable charges. A service charge to be determined by the Director to cover the Water Works' costs in obtaining such special reading will be levied and added to the next water bill.
- R3 Upon written application in hardship cases, the Director or authorized representative may authorize special meter readings to be taken at other than the regularly scheduled times. A service charge as determined in Section 401-57, R2, to cover the Water Works' costs in obtaining such special reading will be levied and added to the next water bill.
- R4 If the Water Works is unable to remove, repair, install or replace a meter due to defective valves, or plumbing, the property owner will be given 30 days in which to make the necessary corrections. Failure to replace defective material within the allotted time may result in the discontinuance of service.
- R5 If an accurate meter reading cannot be obtained due to inaccessibility to the meter; or if the reliability of the meter, the meter reading, or the electronic record of the meter reading is in doubt; or if the meter is inoperable; or if conditions prevent the scheduled reading, charges may be calculated as an

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-57. Department to Have Access to Meter. (Cont.)

estimation based upon consumption history, current consumption trends or other conditions and circumstances as known to the department. The billing statement shall clearly state that charges have been estimated any time actual meter readings are not used to calculate charges.

Sec. 401-58. Inspection of Meters. The superintendent shall be authorized to fix reasonable charges for the removal, testing, and reinstallation of water meters upon application of consumers.

- R1 - When requested by the owner or his agent, the Water Works will test a meter. If, upon testing, the meter is found to be registering more water than actually is passing through it, and the difference is in excess of the tolerance permitted by the American Water Works Association standards, no charge shall be made. Otherwise, the owner or his agent shall pay a service charge as determined by the Director, based on current costs to the Water Works to test the meter.

Sec. 401-59. Installation of Electronic Meter Reading Systems on Existing Services. The superintendent shall, at the request of any consumer and upon payment by such a consumer of the prescribed charge, install an Electronic Meter Reading System (includes the water meter, Meter Interface Unit (MIU), transmitter, wiring, telephone connections, direct reading remote unit, and touchpad) which will permit the reading of the consumer's water meter without entering the building in which the meter is located. The location of the Electronic Meter Reading System shall be subject to the approval of the superintendent in order to insure safe and reasonable access for verification of readings or maintenance purpose.

- R1 Application for an electronic meter reading unit may be made by the property owner or authorized agent.
- R2 Electronic meter reading units will not be installed inside any enclosure which can be locked without approval of the Director or authorized representative.
- R3 Electronic meter reading units shall be installed by authorized employees of the Water Works, their authorized representatives or Certified Persons. The Water Works shall not be responsible for defacement or damage to the property caused by necessary holes, fastenings or other work required for proper installation of electronic meter reading units.
- R4 The Water Works will maintain electronic meter reading units under the same provisions as meters are maintained.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-59. Installation of Electronic Meter Reading Systems on Existing Services. (Cont.)

- R5 Electronic meter reading units may not be installed to relieve the property owner of the responsibility of placing the meter outside where required by regulations.

Sec. 401-60. Charges. The superintendent is hereby authorized to fix reasonable charges, subject to approval of the city manager, for pipe, cocks, meters, metering devices, fittings, remote meter registers and appurtenances to be furnished for water service installations and to establish standard specifications therefor.

- R1 Charges for installation of electronic meter reading units, including all necessary parts and connections, shall be determined by the Director, subject to approval of the City Manager. Meters, electronic meter reading unit, registers, fastenings, connections and valve boxes shall remain the property of the Water Works and may not be moved from one setting to another. The feasibility of installation of the electronic meter reading unit shall be determined by the Water Works or authorized representatives.
- R2 A charge based on the current cost to the Water Works to repair or replace any electronic meter reading unit or connections thereto, necessitated by damage or neglect by the consumer or property owner, shall be determined by the Director, subject to approval of the City Manager. It shall be at the discretion of the Water Works whether to repair or replace an existing remote meter and outside reading device with an electronic meter reading unit but the charge for repair may not exceed the total cost of a new electronic meter reading unit and the installation of such. This charge shall be separate and in addition to any charge for meter repairs provided for in Section 401-53.
- R3 When requested by a property owner or his authorized agent, the Water Works will test an electronic meter reading unit for a charge based on the current cost which shall be determined by the Director, subject to approval of the City Manager. This will be in addition to any charge provided by Section 401-58 for testing the meter itself.

DIVISION F:

WATER FOR TEMPORARY USES

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION F WATER FOR TEMPORARY USES

Sec. 401-61. Water for Temporary Use. Where water is required for temporary use on premises not supplied, or insufficiently supplied, with metered water, application shall be made to the water works for a special permit to use water from a fire hydrant or other available source. All arrangements for such use require the approval of an authorized officer of the water works. The director is authorized to require temporary meters for such use, and to establish charges for such temporary meters and charges for permits issued for temporary use. Such charges shall be published periodically.

- R1 - An authorized representative of the Cincinnati Water Works shall determine the appropriate available source.
- R2 - Permission to use a fire hydrant must be obtained from the public official having jurisdiction over the fire hydrant before consideration will be given by the Cincinnati Water Works to a request for temporary use permit. A temporary connection to any fire hydrant or other available source must be made in accordance with appropriate Cincinnati Water Works standard drawings.
- R3 - An applicant for temporary use shall complete an application and provide security in certified check, bond or other form acceptable to the Director to ensure compliance with the conditions of the permit. Security will be refunded within a reasonable period of time after return of the meter less a charge for repair or replacement of the meter due to damage beyond normal wear and tear as determined by the Cincinnati water Works, and/or less any other charges for failure to comply with the conditions of the permit.
- R4 - If an applicant is indebted to the Cincinnati Water Works, no temporary use permit shall be granted until all such indebtedness is paid in full.
- R5 - The source from which water for temporary use can be obtained shall be limited to those locations specified on the permit. The permit must be available at the job site and presented on demand to an authorized representative of the Cincinnati Water Works. When each use is completed, the meter(s) shall be returned to the Cincinnati Water Works.
- R6 - No permit shall be issued and no temporary use of water shall be approved for the following purposes:
 - a. Tree, lawn, garden or other spraying.
 - b. Irrigation or watering.
 - c. Filling or testing swimming pools except the first fill after construction or major repair for purposes incident to the construction or repair.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-61. Water for Temporary Use (Cont.)

- d. Washing vehicles or other equipment.
- e. Filling of a cistern, tank or any other facility intended for storage of water located on premises which abut a street containing a distribution water main available for service connections.
- f. Other purposes determined to be inappropriate by the Director.

Sec. 401-62. Use of Water Without a Permit. It shall be prima facie unlawful to use, or be connected to use, water from a fire hydrant or other available source unless a properly authorized temporary use permit is securely attached to the connection in a conspicuous place near the point of connection. This shall not apply to service branches for new construction.

No person shall remove, obliterate, deface or obscure a temporary use permit, except the permittee at the completion of use; nor shall any person place a permit upon a connection for which said permit was not issued.

Each day's violation of any part of this section shall constitute a separate offense under Section 401-999.

The superintendent shall be authorized to remove and confiscate any unlawful hose, connection or permit found attached to a fire hydrant or other available source of water. When such is done, or when water is used without a permit, the superintendent shall be authorized to double the charges provided by Section 401-63 and the violator shall be required to pay them.

- R1 - When disconnected from the fire hydrant or other source, the permit shall be kept on the job in a safe place, available for inspection.
- R2 - Failure to shut off any hydrant or outlet when water is not being used, so as to allow water to flow from it, or an improper connection while the hydrant is being used, shall be ample cause for revocation of temporary use permit. The permit will not be re-issued until payment is made for twice the amount of water wasted, as estimated by the Utility.

Sec. 401-63. Charge for Unmetered Water. Unmetered water shall be paid for on the basis of meter rates, according to the estimated amount used or to be used. The superintendent of water works shall be authorized to provide by rule for the method of fixing charges in the case of particular types of unmetered uses.

- R1 For water used in construction of a building, charges as determined by the Water Works shall be paid by the owner, authorized representative or Certified Person at the time of branch application.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-63. Charge for Unmetered Water. (Cont.)

- R2 Charges for unmetered water to be used in connection with the construction of commercial or industrial development or a commercial or industrial building shall be based upon the cubic content of the building. When the cubic content of the building is used, each 1,000 cubic feet of building content will equal one billing unit. Charges shall be calculated by multiplying the highest tier commodity rate for the appropriate political subdivision times the number of billing units. Where an alternate source of water for construction is available, other than from the branch that was purchased for the project, the unmetered construction water charges, as described in R2, may be waived. Alternate sources of water may include an existing metered branch, an on-site temporary storage tank, a fire hydrant temporary use permit or other sources as approved by the Director or authorized representative. In all cases, where this option is exercised, the meter on the permanent service must be installed and sealed at the time the new service is turned on or upon occupancy, whichever occurs first. All water registered on this meter and any applicable service charges will be billed to the account through the normal account billing process. Breaking the meter seal or removal of the meter by anyone other than an authorized Water Works employee may result in assessment of charges as described in this section.
- R3 Charges for unmetered water to be used in connection with the construction of a residential building equal to or less than three (3) family units shall be based on the following: One (1) family unit construction shall be based on 50,000 cubic foot content. Two (2) family unit construction shall be based on 75,000 cubic foot content. Three (3) family unit construction shall be based on 87,500 cubic foot content.
- R4 For unmetered water used for other than construction purposes, written application including the purpose and estimated duration of service needed shall be made by the property owner or authorized representative. An account shall be established for each specific use or separate job, upon approval by the Director or authorized representative. Payment shall be made at intervals to be determined by the Director or authorized representative. The permittee shall be required to report usage at intervals determined by the Director or authorized representative.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-63. Charge for Unmetered Water. (Cont.)

- R5 Charges for unmetered temporary use of water for other purposes shall be determined after calculating the estimated number of cubic feet of water required. Each particular type of use shall be estimated according to a table authorized by the Director. Every permit shall be subject to a minimum charge determined by service area.
- R6 No charge shall be made for temporary use of water by the City of Cincinnati or any of its municipal institutions for municipal purposes.
- R7 Falsification of any report shall immediately cancel the permit. Another permit for the same purpose shall not be issued unless the applicant agrees to pay double the charges prescribed by these Rules.

Sec. 401-65. Special Meters. In the case of a large construction project, the superintendent shall be authorized to require the use of a special meter to register water consumed. The meter will in such cases be furnished by the department without charge; provided that the permittee shall be chargeable for the cost of repairs in case the meter shall be damaged, and for the cost of the meter itself if it is not returned promptly after discontinuance of its use.

- R1 In these instances, a quarterly minimum service charge, determined by service area, will be levied and a temporary use permit issued. After the special meter is set, charges for water used will be as established in Section 401-77.
- R2 Where water service branches are installed for temporary use to supply special meters, the water service branch application procedure will be followed as under Section 401-31 and there will be an additional service branch withdrawal charge based on the current cost of removing a service branch.

Sec. 401-67. Cisterns on Streets Having Water Mains. No permit shall be issued to fill any cistern from a fire hydrant or a private water service branch when such cistern is located on premises which abut a street containing a water main available for service connections.

- R1 - Holders of water hauling permits shall be governed in all cases by this section, which prohibits the servicing of any premises on a street containing a water distribution main.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-69. Resale of Water Prohibited. No person shall sell, or otherwise furnish to another, water obtained from the Cincinnati water works, except persons specifically permitted to do so by an authorized officer in accordance with the rules and regulations of the department.

- R1 - Any person regularly engaged in the business of hauling water for resale or for use in performing service, who holds an approved, annual water hauling permit, is excepted. It shall be the policy of the Cincinnati Water Works to limit the number of permits for hauling of water for residential use to a minimum, as may be determined to be in the best interests of the public convenience or necessity.
- R2 - While an owner's billing of tenants for water service at a profit is prohibited, the use of private water meters for the purpose of collecting each tenant's fair share of the total owner's bill is permitted. A nominal charge reflecting the actual cost associated with the reading of private meters and billing thereon is not a violation of this section.

DIVISION G:

**APPLICATIONS FOR WATER
SERVICE**

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION G - APPLICATIONS FOR WATER SERVICE

Sec. 401-71. Service Contract to be Made by Owner. Inasmuch as water service is a substantial and valuable benefit to land, a written water service contract for any water service, which for the purposes of this section includes fire protection service, shall be entered into by the owner of any real estate upon original establishment of an account or promptly upon obtaining title to the real estate or upon transfer of an existing account to a different account holder or customer. Failure to sign and return the contract to the Cincinnati water works within 30 calendar days thereafter may be cause for refusal or termination of water service to the premises.

If service has been terminated under the provisions of this section, a reconnection charge must be paid prior to restoration of water service. Service can then only be restored by an authorized employee of the Cincinnati water works after the written service contract has been duly filed at the department office. The Cincinnati water works shall not be responsible for any inaccuracy in the water service contract due to wrongful information given, or errors in receiving such information by telephone.

The account holder for each water supply service shall be the owner. For each water supply service, the owner shall state the name and address to which statements of account shall be mailed for payment. The party to whom the statements are mailed shall be known as the "customer."

R1 Applications for water service contracts may be made at the office of the Commercial Services Division in person, by U.S. mail, or by telephone request.

Sec. 401-73. Customer to be Free of Indebtedness for Services Billed by the Department. No application for water service shall be allowed and no water shall be supplied to any applicant, customer or consumer, where it is apparent that the applicant, customer or consumer is indebted for services, materials, damages, fines, penalties or other charges billed by the department, whether such services were performed and delivered by the Water Works or through any other city of Cincinnati department with jurisdiction and for whom the Water Works provides billing and collection services. This section shall apply whether the indebtedness for services, materials, damages, fines, penalties or other charges was incurred at the premises served or at any other premises billed by the Water Works within or without the city limits.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION G - APPLICATIONS FOR WATER SERVICE

Sec. 401-71. Service Contract to be Made by Owner. Inasmuch as water service is a substantial and valuable benefit to land, a written water service contract for any water service, which for the purposes of this section includes fire protection service, shall be entered into by the owner of any real estate upon original establishment of an account or promptly upon obtaining title to the real estate or upon transfer of an existing account to a different account holder or customer. Failure to sign and return the contract to the Cincinnati water works within 30 calendar days thereafter may be cause for refusal or termination of water service to the premises.

If service has been terminated under the provisions of this section, a reconnection charge must be paid prior to restoration of water service. Service can then only be restored by an authorized employee of the Cincinnati water works after the written service contract has been duly filed at the department office. The Cincinnati water works shall not be responsible for any inaccuracy in the water service contract due to wrongful information given, or errors in receiving such information by telephone.

The account holder for each water supply service shall be the owner. For each water supply service, the owner shall state the name and address to which statements of account shall be mailed for payment. The party to whom the statements are mailed shall be known as the "customer."

R1 Applications for water service contracts may be made at the office of the Commercial Services Division in person, by U.S. mail, or by telephone request.

Sec. 401-73. Customer to be Free of Indebtedness for Services Billed by the Department. No application for water service shall be allowed and no water shall be supplied to any applicant, customer or consumer, where it is apparent that the applicant, customer or consumer is indebted for services, materials, damages, fines, penalties or other charges billed by the department, whether such services were performed and delivered by the Water Works or through any other city of Cincinnati department with jurisdiction and for whom the Water Works provides billing and collection services. This section shall apply whether the indebtedness for services, materials, damages, fines, penalties or other charges was incurred at the premises served or at any other premises billed by the Water Works within or without the city limits.

DIVISION H:

WATER RATES

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION H WATER RATES

Sec. 401-75. Water Rates. The director of water works shall fix the charges for water used by consumers within the city of Cincinnati, for consumers in Hamilton county outside the Cincinnati city limits, and for consumers in Butler, Clermont, and Warren counties, at rates sufficient to pay the expenses of the water works in accordance with Article IV, Section 9, of the city charter.

The director shall also fix the charges for water supplied to political subdivisions at master meters for redistribution by them through their own water mains, and for standby water service to political subdivisions.

The water rates shall not be in force until approved by ordinance of council.

Sec. 401-76. Service Charges. Each water supply service shall be subject to a Service Charge. The Service Charge shall be based on the size of the water meter.

This section shall apply to each water meter used, but shall not apply to water supply services subject to Section 401-81 or Section 401-82.

(1) For the availability of water service, the Service Charge shall be as follows:

Meter Size (Inches)	Inside Cincinnati		Incorporated Hamilton & Clermont Counties		Unincorporated Hamilton County		Butler & Warren Counties	
	Per Month	Per Quarter	Per Month	Per Quarter	Per Month	Per Quarter	Per Month	Per Quarter
5/8"	6.14	6.45	7.74	8.13	8.17	8.58	8.90	9.35
3/4"	6.57	11.79	8.28	14.86	8.74	15.68	9.52	17.09
1"	8.80	15.26	11.09	19.23	11.70	20.30	12.75	22.11
1 1/2"	11.25	23.56	14.18	29.69	14.96	31.33	16.31	34.14
2"	15.54	32.54	19.58	41.00	20.67	43.28	22.52	47.15
3"	31.28	70.94	39.41	89.38	41.60	94.35	45.32	102.79
4"	59.60	138.44	75.10	174.43	79.27	184.13	86.37	200.59
6"	123.23	271.55	155.27	342.15	163.90	361.16	178.56	393.47
8"	181.36	404.68	228.51	509.90	241.21	538.22	262.79	586.39
10"	255.99	548.43	322.55	691.02	340.47	729.41	370.93	794.67
12"	306.02	645.33	385.59	813.12	407.01	858.29	443.43	935.09

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-76 Service Charges (cont.)

(2) On and after January 1, 2006, for the availability of water service, the Service Charge shall be as follows:

Meter Size (Inches)	Inside Cincinnati		Incorporated Hamilton & Clermont Counties		Unincorporated Hamilton County		Butler & Warren Counties	
	Per Month	Per Quarter	Per Month	Per Quarter	Per Month	Per Quarter	Per Month	Per Quarter
5/8"	6.63	7.24	8.35	9.12	8.82	9.63	9.60	10.49
3/4"	8.07	12.92	10.17	16.28	10.73	17.18	11.70	18.72
1"	10.30	16.91	12.98	21.31	13.70	22.49	14.93	24.51
1 1/2"	13.45	26.33	16.95	33.18	17.89	35.02	19.49	38.16
2"	17.17	36.98	21.63	46.59	22.84	49.18	24.87	53.58
3"	37.63	85.40	47.41	107.60	50.05	113.58	54.52	123.74
4"	72.07	148.82	90.81	187.51	95.85	197.93	104.43	215.64
6"	144.47	291.92	182.03	367.82	192.15	388.25	209.33	422.99
8"	210.96	435.03	265.81	548.14	280.58	578.59	305.68	630.36
10"	295.19	589.56	371.94	742.85	392.60	784.11	427.73	854.28
12"	352.97	693.73	444.74	874.10	469.45	922.66	511.45	1005.22

R1 For water service covering a period of time more or less than a quarterly billing or a monthly billing, the service charge will be calculated on a per diem basis.

Sec. 401-77. Water Commodity Charges

(1) For water used, the Water Commodity Charge rates per hundred cubic feet (Ccf) used shall be as follows:

Per Month	Per Quarter	Inside Cincinnati	Incorporated Hamilton & Clermont Counties	Unincorporated Hamilton County	Butler & Warren Counties
First 20 Ccf	First 60 Ccf	1.46	1.84	1.94	2.12
Next 580 Ccf	Next 1740 Ccf	1.20	1.51	1.60	1.74
Over 600 Ccf	Over 1800 Ccf	1.06	1.34	1.41	1.54

(2) On and after January 1, 2006, for water used, the Water Commodity Charge rates per hundred cubic feet (Ccf) used shall be as follows:

Per Month	Per Quarter	Inside Cincinnati	Incorporated Hamilton & Clermont Counties	Unincorporated Hamilton County	Butler & Warren Counties
First 20 Ccf	First 60 Ccf	1.57	1.98	2.09	2.28
Next 580 Ccf	Next 1740 Ccf	1.29	1.63	1.72	1.87
Over 600 Ccf	Over 1800 Ccf	1.14	1.44	1.52	1.66

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-78. Charges for Fire Protection Services. Each Fire Protection Service serving a private premises shall be subject to a Service Charge based on the size of the service branch at the water main. This section shall not apply to fire protection services subject to Sections 401-82 and 401-83.

(1) The Fire Protection Service Charge rates per month and per quarter shall be as follows:

Branch Size in inches	Inside Cincinnati		Incorporated Hamilton & Clermont Counties		Unincorporated Hamilton County		Butler & Warren Counties	
	Monthly	Quarterly	Monthly	Quarterly	Monthly	Quarterly	Monthly	Quarterly
2 and under	9.82	29.11	12.37	36.68	13.06	38.71	14.23	42.18
3	12.61	37.36	15.89	47.07	16.77	49.69	18.27	54.13
4	14.91	44.74	18.78	56.37	19.83	59.50	21.60	64.83
6	34.44	102.96	43.40	129.74	45.80	136.94	49.91	149.20
8	48.63	145.88	61.27	183.80	64.67	194.02	70.46	211.37
10	58.70	175.83	73.95	221.55	78.07	233.86	85.04	254.78

(2) On and after January 1, 2006, the Fire Protection Service Charge rates per month and per quarter shall be as follows:

Branch Size in inches	Inside Cincinnati		Incorporated Hamilton & Clermont Counties		Unincorporated Hamilton County		Butler & Warren Counties	
	Monthly	Quarterly	Monthly	Quarterly	Monthly	Quarterly	Monthly	Quarterly
2 and under	10.56	31.29	13.30	39.43	14.04	41.61	15.30	45.34
3	13.56	40.16	17.08	50.60	18.03	53.42	19.64	58.19
4	16.03	48.10	20.19	60.60	21.32	63.96	23.22	69.69
6	37.02	110.68	46.66	139.47	49.24	147.21	53.66	160.39
8	52.28	156.82	65.87	197.59	69.52	208.57	75.75	227.23
10	63.10	189.02	79.50	238.17	83.93	251.40	91.43	273.90

Sec. 401-79. Welfare Institutions. Welfare institutions defined in Section 401-85 and subsections thereto which have both applied for welfare rates and received water service on or before July 2, 1983, shall pay a service charge and shall pay for water supplied at the commodity rate prescribed herein as set forth in Section 401-76. All such institutions taking service thereafter shall not be entitled to special rates under this section.

The commodity rate per 100 cubic feet of water supplied shall be established as follows:

For the period January 1, 2002 through June 30, 2002 the rate will be fixed at \$0.76 per Ccf used. After June 30, 2002, the rate will be set at 80% of the 3rd block inside City rate set to the closest 1 cent.

The water rates for Welfare Institutions shall not be in force until approved by ordinance of council.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-81. Charges to Political Subdivisions.

(1) The water commodity charge rates per hundred cubic feet for water used by political subdivisions, other than those whose contracts with the City of Cincinnati specify rates, shall be \$1.49 between November 1 and April 30 and \$1.84 between May 1 and October 31. There shall be no service charges.

(2) On and after January 1, 2006, the water commodity charge rates per hundred cubic feet for water used by political subdivisions, other than those whose contracts with the City of Cincinnati specify rates, shall be \$1.60 between November 1 and April 30 and \$1.98 between May 1 and October 31. There shall be no service charges.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-82. Exemptions from Charges. If no water is consumed in a billing period then no water supply services shall be billed for the following:

(a) Unused service branches installed for vacant unimproved property in connection with highway improvements, which have not been extended beyond the curb stop.

(b) New service branches installed for new construction, prior to the installation and inspection of the water meter, or prior to being used for the purpose intended, or prior to the occupancy of the premises served, whichever occurs first. Billing shall be at the rates specified in Sections 401-76 and 401-77 upon the first regular billing after one of the above conditions is met.

R1 Where a meter installed on a branch is not of the same size as the branch, the charge shall be based on the size of the meter except in the case of fire protection service branches.

R2 When a stand-by service is used in an emergency, the charge shall be based on the meter or meters normally used to supply the premises, disregarding any service charge which might be applicable to the stand-by meter.

Sec. 401-83. Exemptions from Charges for Fire Protection Services. Fire protection services supplying educational institutions as defined in Section 401-85-E and charitable institutions as defined in Section 401-85-C, shall not be billed, and no charge shall be made to these institutions for fire protection services, provided that these institutions have applied for, and received, the approval of the city manager or director of water works for the welfare institution water rate as provided for by Section 401-85 prior to July 2, 1983.

Sec. 401-85. Welfare Institutions Defined. For water rate purposes, the term "welfare institutions" shall include only the classes defined in the sections hereunder and every such class shall be subject to the restrictions set forth in the definition. The term shall under no circumstances include an institution operated for profit or an institution organized directly for the benefit of its supporting members. Applications for classification as welfare institutions shall be filed with the city manager or superintendent of water works. Upon approval of the application, a copy shall be kept on file with the superintendent with a notation of such approval and the authorization of the use of welfare institution rates. The city manager or the superintendent of water works shall from time to time reexamine the right of any such institution to continue to be classified as a welfare institution.

Where a welfare institution operates a commercial business in connection with its work, it shall not be entitled to welfare rates unless the water supplied to such business is separately metered and paid for at regular rates.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-85-C. Charitable Institution. "Charitable institution" shall mean an institution, essentially eleemosynary, caring for orphaned, defective, or delinquent children, or for the ill, aged, or infirm, not substantially supported by revenues derived from its inmates.

Sec. 401-85-E. Educational. "Educational" shall mean a public school district, parochial school, institution of university or senior college rank, school of art or music, or any other educational institution where the same is operated primarily for education.

Sec. 401-85-S. Semi-Charitable Institution. "Semi-charitable institution" shall mean an institution definitely recognized as rendering important welfare service in the community, supported partly by endowments and contributions and partly by fees collected from those served by it.

- R1 - A welfare institution must be organized "not for profit" as shown by a charter or other official records of the institution.
- R2 - A welfare institution must provide benefits to persons other than its supporting members.
- R3 - It shall be the duty of the responsible officers of any approved welfare institution to notify the City Manager or Director of Water Works in writing whenever the status of the institution changes in such manner that it can no longer continue to be classified as a welfare institution or whenever premises billed at welfare rates become subject to regular rates.
- R4 - Welfare rates shall apply on the next regular billing after the date of approval of an application, for the entire period covered by the billing.
- R5 - When approval of welfare institution classification is rescinded or discontinued by the City Manager or Director of Water Works, the next regular billing after the date of such action shall be at the regular rates, for the entire period covered by the billing.
- R6 - Manifold meter settings shall be used to separate water used for welfare purposes from water used for other purposes.
- R7 - The disposition of income from a commercial business operated by a welfare institution does not change the requirement that the business must be separately metered, unless waived in writing by the Superintendent.
- R8 - Premises used for worship or church purposes shall be separately metered.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-85-S. Semi-Charitable Institution (Cont.)

- R9 - Premises used for residence purposes shall be separately metered.
- R10 - Where premises are used primarily for proper welfare purposes by an approved welfare institution, minor portions of the premises used for worship or residence purposes shall be considered part of the welfare institution and need not be separately metered.
- R11 - It shall be the duty of the responsible officers in charge of any approved welfare institution to notify the Cincinnati Water Works in writing whenever additions or alterations are made in the plumbing system serving any premises supplied by water billed at the welfare institution rates.

Sec. 401-86. Boundary Line Consumers. Where real estate premises supplied with city water are located partly within and partly without city of Cincinnati corporation limits, the applicable water rates shall be determined as follows:

- (a) Commercial, industrial and institutional users shall pay the rate applicable to the place where the water is used. Where the consumption or use is partly within and partly without the city, the city service and the outside service shall be separately metered and separately paid for.
- (b) Residential users shall pay the rate applicable to the political subdivision in which the residence is taxed on Hamilton county real property tax duplicate.

Sec. 401-87. Unified Service Areas. Where real estate premises constituting a unified service area are supplied with water through two or more meters, upon application of the owner or his authorized agent, the director shall provide for the consolidation of the consumption readings at the several meters.

Sec. 401-88. Municipal Purposes. No charge of any kind shall be made for water service furnished to the city of Cincinnati or any of its municipal institutions including the Cincinnati Zoological Society for municipal purposes including the operation of the Cincinnati Zoo. This provision shall not apply to concessioners or other private persons using city property for commercial or nonmunicipal purposes.

This provision shall not apply for city of Cincinnati operated golf courses which shall be charged at regular city rates. Such water service as is provided hereunder for the operation of the Cincinnati Zoo is subject to periodic inspection and monitoring by the Cincinnati water works

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-88. Municipal Purposes. (Cont.)

department to assure that there shall be a reasonable usage of water and in the event the Cincinnati water works believes there is an unreasonable usage of water the director of water works shall notify the city manager who may impose a charge for excessive use.

R1 - Does not include use of water as provided for by the City-County Water Contract or other contracts with political subdivisions.

Sec. 401-89. Fire Hydrant Repair and Replacement Charge. Each water supply service within the City of Cincinnati shall be subject to a fire hydrant repair and replacement charge. The charge shall be based on the size of the water meter.

For Fire Hydrant Repair and Replacement Charge the rates shall be as follows:

Meter Size	Per Month	Per Quarter
5/8"	0.65	1.95
3/4"	0.98	2.94
1"	1.43	4.30
1 1/2"	2.74	8.22
2"	4.04	12.13
3"	9.79	29.36
4"	16.31	48.93
6"	32.63	97.87
8"	48.93	146.80
10"	65.24	195.73
12"	75.03	225.09

Sec. 401-90. Contract Billing Services, Water Quality Analysis and Lab Services for Other Agencies.

(a) The director may enter into agreements with other political subdivisions or public agencies to provide customer service, billing and payment collection activities for the provision of public services. Such services may include, but not be limited to, sanitary sewerage service, stormwater drainage and collection service, solid waste collection and yard waste collection. Charges for such services may be issued on a unified utility statement.

(b) The director may enter into agreements with agencies that directly or indirectly receive water from the City of Cincinnati to provide water quality analysis and lab services required by current distribution system water quality regulations. There shall be a charge, as determined by the director. The amount of the charge shall be based on the cost of providing the service. The director shall periodically review the costs and adjust the charge if necessary.

DIVISION I:

PAYMENT OF BILLS

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION I - PAYMENT OF BILLS

Sec. 401-91. Unlawful Taking of Water. No person, firm, corporation or political subdivision shall take water from any connection to the water supply system of the Cincinnati water works unless a proper water service connection is installed according to law and water bills are paid, except as otherwise provided for temporary use or municipal use of water.

Sec. 401-92. Payment Requirements. Charges shall be payable monthly or quarterly as determined by the director. Payment shall be made on or before the payment dates specified on the bill. In cases of temporary hardship or circumstances beyond the control of the property owner, the director or authorized representative may grant an extension of time for payment, not to extend beyond the end of the next billing period, or may enter into a written agreement with the property owner, the property owner's authorized agent, representative or tenant as provided under Section 401-93-A (e), for extended term payments.

Partial payment may be accepted but charges shall be paid in full by the payment dates specified on the bill or by the expiration date of any extension granted. Failure to pay the balance due, inclusive of all charges billed by the department, shall result in termination of water service and/or other penalties.

- R1 The Director or his authorized representative shall determine the billing cycle and identifying number for each account. Bills for water, fire protection, and other services billed by the department shall be known as statements.
- R2 Certain employees of the Cincinnati Water Works and City Treasurer's Office are authorized to directly receive payments. Anyone who takes money for payment of any statement, other than an authorized employee of the Cincinnati Water Works or the City Treasurer's Office, except as specified in R3 of this section, is acting as the agent of the customer. The Cincinnati Water Works cooperates with the customers' agents but assumes no responsibility whatsoever for them.
- R3 When delinquent accounts are referred to the City's Law Department, City Treasurer's Office, or to private collection agents under contract with the City, the City's Law Department, City Treasurer's Office, or said collection agent is authorized to receive payments and enter into terms of payment in the best interests of the City.
- R4 Statements of accounts, applications, and invoices are payable at the Cashier's Office or night deposit box of the Cincinnati Water Works, the City Treasurer's Office, or through the U. S. Postal Service to either the payment locations specified by the Cincinnati Water Works or to the office of the Commercial Services Division at 4747 Spring Grove Avenue, Cincinnati, Ohio 45232-1986.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-92. Payment Requirements. (Cont.)

- R5 A check or money order shall be made payable to "Cincinnati Water Works" or "CWW", shall bear the account, application, or invoice number, and shall be accompanied by the proper cashier's coupon or payment stub.
- R6 The authorized cashier's stamp or perforation on a statement constitutes an official receipt. When payment is made by mail, a receipt will not be issued unless requested in writing and the entire statement and a self-addressed, stamped envelope accompanies the payment. Any receipt is void if the check or money order submitted fails to clear the financial institution on which it is drawn.
- R7 The Director or his authorized representative may refuse to accept checks based upon previous receipt of dishonored checks or other credit information, with prior written notice given to the customer/account holder, where practical.
- R8 The property owner or his authorized representative may dispute charges through a formal dispute resolution process. The department shall provide for a formal dispute resolution process for all charges billed. This process is to be published with explanation as a part of each statement. Disputed charges may go unpaid without penalty until such dispute is resolved.
- R9 Partial payments will be applied to the oldest undisputed charges first and will be prorated evenly over all billed services.

Sec. 401-93. Service Charge for Non-Payment. Bills shall be due and payable when mailed. If a bill is not paid by the earliest payment date specified on the bill, a service charge shall be assessed. The amount of the service charge shall be determined by the director based on earnings lost on overdue amounts and the cost of delinquent account services.

At the time a delinquent account service charge is due, or as soon thereafter as is practical, a final notice for all indebtedness on the account shall be mailed to the name and mailing address in which the account is carried.

A delinquent account service charge shall be canceled or waived when the charge was the result of a Cincinnati Water Works error, or may be canceled or waived when the cost of collection exceeds the amount of the service charge.

- R1 - If a check or other remittance tendered in payment of any bill, statement, or notice, fails to clear through the banks and is returned to the Cincinnati Water Works for any reason, the charges shall be considered unpaid. Any receipt

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-93. Service Charge for Non-Payment (Cont.)

issued therefor shall be void, the indebtedness shall be restored to the account and Sections 401-93 and 93-A shall apply as though no payment has been received.

Sec 401-93 A. Involuntary Disconnection.

(a) The Cincinnati Water Works shall provide at least seven (7) calendar days prior written notice of service disconnection to a customer in default for failure to make payment or for violation of any sections herein, whether or not such customer be a landlord, owner, or others.

(b) At least seven (7) calendar days prior to disconnection of water service to any user(s) not responsible for the payment of charges for services billed, a notice of the intent to disconnect water service shall be posted or affixed upon the premises in a conspicuous location and/or personally served upon the user(s), owner or agent. Such notice shall include the rights and obligations as set forth in paragraphs (d) and (e) of this section.

(c) When account records show the premises is a single-family residence and the billing has been directed to such premises, it shall not be necessary to post a notice of disconnection upon the premises or otherwise serve notice of disconnection.

(d) Any person or entity responsible for the payment of charges for services billed who causes the disconnection of water service by failure to pay the charges for the past service or through any other violation of applicable law, the provisions of this chapter and Cincinnati Water Works rules and regulations, or who willingly causes the water service to be disconnected, except while repairs are in progress or during temporary emergencies, shall be liable for compensatory damages to all other persons or entities denied the benefits of water service so disconnected.

(e) If a tenant makes arrangements to the satisfaction of the Cincinnati Water Works for the arrearage of the customer who is in default in order to avoid disconnection of water service for nonpayment, or to cause reconnection of service so disconnected, the tenant shall have the right to deduct the amount of such payment(s) from any future payment of rent.

(f) When a notice of disconnection is posted at the premises or personally served upon the owner, user(s) or agent as a result of nonpayment of charges for services billed or failure to comply with the provisions of this chapter and Cincinnati Water Works rules and regulations, there shall be a charge, determined by the director, to the customer responsible for payment of the statement. The director shall periodically review the costs and adjust the charge if necessary. This charge is in addition to the delinquent charge specified in Section 401-93.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec 401-93 A. Involuntary Disconnection.

(g) When a water service disconnection trip is made to a premises as a result of nonpayment of charges for services billed or failure to comply with the provisions of this chapter and Cincinnati Water Works rules and regulations, there shall be a charge, determined by the director, to the customer responsible for the payment of the statement. The director shall periodically review the costs and adjust the charge specified in Section 401-93.

- R1 For purposes of this section, "user(s) not responsible for payment of charges for services billed" is defined as any occupant of the premises served, not a member of the household nor an agent of the customer in default.
- R2 If a disconnection notice service charge is not paid, the director or authorized representative shall have the authority to disconnect water service in accordance with Section 401-95.
- R3 The director or authorized representative may permit the payment of a disconnection notice service charge with the next regular bill and may continue to supply water to a premises if all other indebtedness is paid.
- R4 The Cincinnati Water Works shall not be responsible for the failure of any customer to see, observe, read or understand a posted or personally served disconnection notice.
- R5 The Cincinnati Water Works shall not be responsible for the removal or destruction of any disconnection notice posted or served or for any marks or damage caused by affixing or removing a disconnection notice.

Sec. 401-93-B. Reconnection of Water Service Charge

- (a) When water service has been terminated as a result of nonpayment of a water bill or failure to comply with the Cincinnati water works rules and regulations, there shall be a service charge levied against the account of the customer for the reconnection of water service. The amount of the service charge shall be based on the cost of providing the service, and shall be set by the director of water works with the approval of the city manager.
- (b) No service charge shall be levied against an account for the reconnection of water service when water service is being restored and/or reconnected to a customer not responsible for the termination of the service.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-94. Assessing Charges. The superintendent shall assess and collect proper charges for water, material supplied and work done. Any owner of real estate premises installing or maintaining water service connections shall be considered as accepting the provisions of all lawful rules and regulations of the department and as agreeing, in particular, to be liable for all water and service charges for such premises, whether the accounts for such premises are carried in the name of such owner or in the name of tenants or other persons.

- R1 Owners of record of property are always responsible to the Water Works for any bills against their property. An explanation of this may be obtained upon request from the Commercial Services Division.
- R2 No credit shall be entered against any account or against any charges assessed without specific authorization in the form of a properly compiled credit memorandum form bearing the written signature of the Director or authorized representative.
- R3 If by reason of inadvertence, oversight, or faulty calculation, errors shall occur in charges assessed against any premises, the owner of record shall not be relieved of the responsibility or obligation for payment of charges assessed to correct such errors.
- R4 In instances where a water meter has not been installed but the water service branch has been installed and the premise has received a certificate of occupancy, the Director or authorized representative shall determine charges based on the circumstances of the particular premise, including but not limited to, current consumption levels, normal consumption at a similar premise, length of time the water was consumed without registration on a meter, occupancy levels at the premise, minimum service charges in effect during the period and conditions which allowed the consumption to occur without registration. In no case shall charges extend to periods beyond six (6) years previous to the date when the department first discovered that consumption had occurred without registration on a meter.
- R5 In instances where a water meter has been removed, stolen or is inoperable and the water service is indicated as off on the Water Works records but is subsequently found to be on, the Director or authorized representative shall determine consumption charges based on the circumstances at the particular premise. Circumstances considered may include, but not be limited to, previous or current consumption levels, normal consumption at a similar premise, length of time the water was consumed without registration on a meter, occupancy levels at the premise, minimum service charges in effect during the period and conditions which allowed the consumption to occur without registration. In no case shall charges extend to periods beyond six (6) years previous to the date when the department first discovered that consumption had occurred without registration on a meter.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-94. Assessing Charges. (Cont.)

- R6 The account holder for each water supply service shall be the owner of record. For each account, the owner of record shall state an address to which statements of account shall be mailed to him for payment. Duplicate statements may be mailed to an agent of the property owner, at the direction of the property owner. A charge for the cost of this service may be assessed.
- R7 A final reading and statement are required whenever a change of property ownership occurs. A final reading must be requested by either party to the transaction at least seven (7) days prior to the transfer or ownership change. Failure to provide access to the meter or the current active telephone number for the final reading may result in refusal or discontinuation of water service to the premises.
- R8 Final readings and resulting charges shall be based on registration on the meter and shall be consistent with Water Works Regulation 401-52, Rule 1, regarding defective or slow meters, as determined by the Director or authorized representative.

Sec. 401-95. Owner's Responsibility. The maintenance of water service connections being a substantial and valuable benefit to land, any owner of real estate premises maintaining such water service connections shall assume responsibility for the total of all water charges levied against the premises during such ownership in the same manner as the person who actually incurred the charges. This assumption of responsibility shall be a necessary condition to the continuance of water services to the premises and the failure to pay such charges when billed in accordance with the provisions of this division of the Cincinnati Municipal Code shall constitute grounds for the superintendent to refuse water service to the premises.

- R1 - Upon receipt of any bill for water service charges made against a real estate premises, which the owner of such premises knows were incurred before his ownership, the owner may apply for relief of such charges.
- R2 - Relief from charges incurred against a premises before the owner was in possession will be granted upon request by establishing an appropriate credit to the account after the owner submits a copy of the deed or brings the deed to the office of the Commercial Division or submits other acceptable proof of the date of his ownership.
- R3 - Upon request of an owner or bona fide prospective purchaser of real estate premises, the Director shall supply information concerning water service charges known to exist at the time of the request.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-96. Leakages. No reduction in water charges shall be made for leakage.

Sec. 401-97. Bad Checks, Service Charge. Whoever shall tender in payment of any bill or bills issued by the Cincinnati water works a check or other commercial paper which fails to clear through the banks and is returned to the water works shall be assessed a service charge, the amount to be determined by the director of water works, based on the costs to the city of processing and collecting on such dishonored instrument, for each time such check or instrument is returned. This charge shall be chargeable against the premises served, if the maker of the check or instrument maintains water service connections, in the same manner as charges for water. Assessment of this service charge shall not relieve a maker of any criminal or civil liability provided by law.

Sec. 401-98. Bankruptcy. Where premises in arrears for payment of water bills become subject to a bankruptcy or insolvency court, the superintendent may permit the supply of water to such premises to be continued or restored without previous payment of the water bill accrued under the bankrupt or insolvent owner.

R1 - Owners of property are liable for all water and service charges against their premises assessed in the name of tenants or other persons who become subject to a bankruptcy or insolvency court.

Sec. 401-101. Bills for Material or Service. Charges for water main installations, service branches, meters, temporary use of water, fire protection services, work done, material furnished, other service by utility forces or damages to utility property shall be payable as stated on bills or invoices rendered. If not paid as stated thereon, the charges shall be chargeable against the customers' premises or any premises for which the charges are made, as in the case of charges for water.

R1 - Bills will be delivered by first-class mail by the U. S. Postal Service.

R2 - When no directions are given, bills will be mailed to "owner" at the premises.

R3 - Bills shall be paid on or before the date stated on the bill.

Sec. 401-102. Additional Charges for Services. For services including, but not limited to, return trips necessitated by failure of the customer to provide reasonable access, or by failure to comply with Cincinnati Water Works rules and regulations, there shall be a charge, determined by the director, to the customer responsible for the payment of the statement. The director shall periodically review the costs and adjust the charge if necessary.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-103. Failure to Receive Bills. All bills shall be mailed to the premises served or other address known to the utility. Any property owner or the owner's authorized agent may list a mailing address with the utility for use in mailing bills. Failure to request such listing or to receive any bill, invoice or notice does not relieve the property owner from responsibility for payment as required. Duplicate bills may be obtained upon application.

Sec. 401-106. Collection of Water Bills by Division of City Treasury. There is hereby established a charge per water bill collected by the division of city treasury for the water works department through the facilities of the division of city treasury maintained at city hall for the receipt of cash payments of water bills. The amount of the charge is to be negotiated by the division of city treasury and the water works department, with final authority resting with the city manager, and is to be based on the actual costs to the treasury division of its collection activity.

R1 - The charge shall be paid by the Cincinnati Water Works.

DIVISION J:

FIRE HYDRANTS

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION J - FIRE HYDRANTS

Sec. 401-111. Fire Hydrant Leads. The leads for public fire hydrants will be considered part of the water distribution mains. When new mains are laid, the necessary leads will be installed concurrently with the main and paid for in the same manner. Where a new fire hydrant is required on an existing main or an existing fire hydrant must be relocated for new development, or to accommodate the abutting owner, the owner of such abutting property must pay the cost of the new or altered hydrant lead.

Sec 401-112. Fire Hydrants Within the City Limits. Within the city limits, the water works will provide all necessary public fire hydrants in dedicated streets.

- R1 - In city subdivisions where streets have not been dedicated, or on private fire protection systems, the fire hydrants shall be furnished by the developer or the owner.
- R2 - No water shall be taken from any fire hydrant without a permit, except for fire fighting or municipal purposes.
- R3 - In no case shall a fire hydrant tagged "For Fire Only" be used for any purpose except to fight a fire, unless specifically approved by the Superintendent.

Sec. 401-113. Fire Hydrants Outside City Limits. Fire hydrants installed outside city limits shall be furnished and maintained by the political subdivision which has contracted for water in that area unless otherwise provided for by contract. The material used and the installation shall conform to standard Cincinnati Specifications and shall be subject to inspection and approval by the superintendent.

- R1 - All installations, repairs, replacements, or removals of fire hydrant leads shall be subject to Water Works inspection.
- R2 - No water shall be taken from any fire hydrant outside city limits without a permit, except for fire protection or authorized public purposes.
- R3 - In no case shall a fire hydrant tagged "For Fire Only" be used for any purpose except to fight a fire, unless specifically approved by the Superintendent.
- R4 - The County Commissioners and the proper officials of municipalities within the County Water Area shall be authorized to use reasonable amounts of water from fire hydrants, without charge, for municipal purposes.
- R5 - The Superintendent reserves the right to require a permit for each separate use by a public agency, in accordance with our contracts.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 1231-15. License Fee for Use of Fire Hydrant. Application for license to use a city fire hydrant shall be made to the water works. If the purposed use is not inconsistent with water works rules and regulations and rules of the fire division or contrary to law the water works shall grant a license and assess charges for the proper license fee. The license fee shall be set by the director and published periodically.

When a license is granted, the water works will furnish a fire hydrant spanner wrench if required. Failure to return this wrench at the completion of the fire hydrant use will result in a replacement charge.

DIVISION K:

FIRE PROTECTION SERVICE

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION K - FIRE PROTECTION SERVICE

Sec. 401-117. Fire Protection Services for Private Premises. A quarterly or monthly charge shall be made for each fire service branch serving private premises based on the size of the branch at the main, as provided for by Section 401-78.

A fire service branch from the main shall not be used for other than fire fighting purposes, except when a dual service has been approved by the superintendent.

Where a fire service branch has outlets such as fire hydrants or hose outlets, and was installed prior to the regulations requiring detector check meters, the superintendent shall seal each outlet. The seal shall not be broken except when necessary for fire fighting.

It shall be the responsibility of the owners of the property served, or their agents, to obtain permission from the superintendent in advance of using water from a fire protection service for any purpose, including fire drills and pressure testing of a fire protection system. The superintendent, upon granting permission to use water from a fire protection services, shall arrange to have an inspector visit the premises for the purpose of resealing outlets, reading detector check meter, and estimating the amount of water used. to be billed by the department.

The superintendent may order a fire service branch metered and converted to a domestic account to be billed at the monthly or quarterly rates for general consumers provided for by Section 401-76 and 401-77 for any of the following reasons:

- (a) Use of water for other than fire fighting purposes. Flushing of debris, clean up or flushing of spillage, watering of dumps and other dry areas shall not be considered as fire fighting purposes.
- (b) Failure to repair a leak or leaks on the fire service branch or fire protections system.
- (c) Use of water to control or extinguish self-made fires.
- (d) Unauthorized breaking of a seal or seals on outlets of a fire protection system.
- (e) Registration on a detector check meter indicating unauthorized use of water.
- R1 - It shall be the responsibility of the owner of the property served, or their agents, to notify the Water Works, in writing, within forty-eight (48) hours, stating their reason when a seal, or seals, on any outlet is broken.
- R2 - All private fire protection systems shall require a detector check assembly unless the fire branch is fully metered. The detector check assembly shall be in accordance with the Standard Drawing #108-6, in the Appendix.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-117. Fire Protection Services for Private Premises (Cont.)

- R3 - Application for a dual service branch may be accepted provided the size of the branch is not larger than the distribution main. All dual service branches shall be installed in accordance with the specifications and applicable Standard Drawings in the Appendix. Where a domestic service less than 4" in size is required, a two-inch or a one-inch service may be provided. No meter less than 1 1/2" in size may be installed on the 2" service and a meter not less than 3/4" in size may be installed on the 1" service.
- R4 - Where a two (2) inch or one (1) inch service branch is taken off the fire service branch, the Water Works, or its agent, shall furnish all labor and material necessary to make the connection, with the exception of excavation and restoration. Charges for this service will be established by the Superintendent.
- R5 - Applications for fire protection service branches must be accompanied by applications for all meters required. Three sets of prints showing property line, layout of fire line, fire hydrants, hose connections and buildings must accompany application. Payment for the use of temporary water for construction purposes must be made at the time of application.
- R6 - Where dual services are installed and the domestic service is four (4) inches or larger, the valve controlling the domestic supply must be a Cincinnati inspected valve and shall be purchased from the Water Works.
- R7 - No application for a fire protection service branch will be accepted where the size of said branch exceeds the size of the main serving such branch.
- R8 - It is permissible to increase the size of fire protection service branches downstream of the detector check assembly but they may be increased only one size larger than the branch applied for.
- R9 - When an additional fire branch is installed to supplement an existing system and the two are interconnected, the entire system becomes an open system and detector check valves with a detector check meter assembly must be installed on BOTH branches, regardless of the status of the original system.
- R10- All piping in the fire protection system up to and including that in the meter or detector check setting, must be Cincinnati Inspected, cement-lined, class 250 cast iron pipe and copper or red brass.
- R11- All fire line dual or combined services must be inspected up to, and including the meter setting or check valves, by the Water Works.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-117. Fire Protection Services for Private Premises (Cont.)

- R12- It shall be the responsibility of the owner of the property, or an authorized agent, to request and obtain approval when alterations are made in the piping or equipment attached to any fire service branch. Requests for approval of additions or alterations shall be accompanied by two sets of plans.
- R13- There will be no charge for water used for fire fighting purposes.
- R14- All detector check meter settings must be inspected in the same manner as standard meter settings, as specified under Sec. 401-54.

Sec. 401-118. Combination of Services. The director of the water works may authorize the installation of a common line to be used to carry water for all purposes where the water works is able to provide metering devices which will satisfy the demands for both fire protection and domestic, commercial or industrial requirements.

Where such installation is made, the charges for combined water, sewage service, and fire protection, shall be the same as for water supply service alone.

- R1 Where the Director authorizes the use of a meter which permits water for fire protection and domestic or commercial consumption to be transmitted through the same pipe, the service charges for domestic or commercial water will be based upon Water Works' requirements for meter size.
- R2 Where a property owner wants a lower domestic service charge than available under Rule 1, the Director may permit him to apply for a dual service connection from the water service branch. After all piping has been permanently separated, as indicated by an inspection by the Cincinnati Water Works so that the detector check meter will measure no domestic, commercial or industrial requirements, the quarterly charge for fire protection service shall be based on the size of the fire protection service branch at the main as provided by Section 401-78.
- R3 Limited area sprinkler systems as defined in Ohio Revised Code, Section 1204.0, may be served through a domestic service branch and meter so long as (a) the cognizant fire protection agency provides written approval therefore, and (b) the limited area sprinkler system demand for water will not require an increase in the branch and meter size above that required to solely meet the domestic water service demand.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-118. Combination of Services. (Cont.)

- R4 The written authorization provided by the cognizant fire protection agency giving its approval for provision of fire protection service shall specifically indicate that the domestic service and, hence, the fire protection service provided through it may be interrupted for failure to comply with the rules and regulations of the Cincinnati Water Works including failure to pay in a timely fashion bills levied against the domestic account.

DIVISION L:

**CROSS-CONNECTION CONTROL
AND WATER QUALITY PROTECTION**

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION L - CROSS-CONNECTION CONTROL AND WATER QUALITY PROTECTION

Sec. 401-125. Backflow Protection. If, in the judgment of the water works superintendent, the integrity of the public water system is, or can be, endangered by backflow from an actual or a potential cross-connection within the plumbing system of a water consumer, the superintendent may order the installation of an approved backflow prevention method or device consisting of either an air-gap, double sanitary check valve assembly, vacuum breaker, reduced pressure principle backflow preventer or any combination thereof at the water service connection to the premise.

The water consumer shall install the designated device or method at the consumer's own expense, and failure, refusal or inability to install the device or method immediately shall constitute a ground for discontinuing water service to the premise until such device or method has been installed and approved by the superintendent.

The use of the approved backflow preventer at the water service connection does not in any way affect or eliminate the need for individual fixture devices or air-gaps as required by the Ohio Building Code.

All necessary permits shall be obtained from the political subdivision having jurisdiction.

R1 Definitions.

As used in Section 401-125:

- (A) "Air gap separation" means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood level rim of the receptacle. The distance shall be twice the pipe diameter but never less than one inch.
- (B) "Approved" means that a backflow prevention device or method has been accepted by the Cincinnati Water Works and the Ohio Environmental Protection Agency as suitable for the proposed use.
- (C) "Auxiliary water system" means any water system on or available to the premises other than the public water system and includes the water supplied by the system. These auxiliary waters may include water from another purveyor's public water system; or water from a source such as wells, cisterns, lakes, or streams; or process fluids; or used water. They may be polluted or contaminated or objectionable or constitute a water source or system over which the Water Works does not have control.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-125. Backflow Protection (Cont.)

- (D) "Backflow" means the flow of water or other liquids, mixtures, or substances into the distribution pipes of a potable water supply from any source other than the intended source of the potable water supply.
- (E) "Backflow prevention device" means any device, method, or type of construction intended to prevent backflow into a potable water system.
- (F) "Consumer" means the owner or person in control of any premises supplied by or in any manner connected to a public water system.
- (G) "Consumer's water system" means any water system, located on the consumer's premises, supplied by or in any manner connected to a public water system. A household plumbing system is considered to be a consumer's water system.
- (H) "Contamination" means an impairment of the quality of the water by sewage or process fluids or waste to a degree which could create an actual hazard to the public health through poisoning or through spread of disease by exposure.
- (I) "Cross-connection" means any arrangement whereby backflow can occur.
- (J) "Degree of hazard" is a term derived from an evaluation of the potential risk to health and the adverse effect upon the potable water system.
- (K) "Double check valve assembly" means an assembly composed of two single, independently acting, check valves including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the watertightness of each check valve.
- (L) "Health hazard" means any condition, device, or practice in a water system or its operation that creates, or may create, a danger to the health and well-being of users. The word "severe" as used to qualify "health hazard" means a hazard to the health of the user that could reasonably be expected to result in significant morbidity or death.
- (M) "Interchangeable connection" means an arrangement or device that will allow alternate but not simultaneous use of two sources of water.
- (N) "Non-potable water" means water not safe for drinking, personal, or culinary use.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-125. Backflow Protection (Cont.)

- (O) "Person" means the state, any political subdivision, public or private corporation, individual, partnership, or other legal entity.
- (P) "Pollution" means the presence in water of any foreign substance that tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.
- (Q) "Potable water" means water which is satisfactory for drinking, culinary, and domestic purposes and meets the requirements of the department of health.
- (R) "Process fluids" means any fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration such as would constitute a health, pollution, or system hazard if introduced into the public or a potable consumer's water system. This includes, but is not limited to:
 - (1) polluted or contaminated waters;
 - (2) process waters;
 - (3) used waters originating from the public water system which may have deteriorated in sanitary quality;
 - (4) cooling waters;
 - (5) contaminated natural waters taken from wells, lakes, cisterns, streams, or irrigation systems;
 - (6) chemicals in solution or suspension;
 - (7) oils, gases, acids, alkalis, and other liquid and gaseous fluids used in industrial or other processes, or for fire fighting purposes.
- (S) "Public water system" means any potable water system as defined in rule by Section 3745-81-01 of the Ohio Administrative Code.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-125. Backflow Protection (Cont.)

- (T) "Reduced pressure principle backflow prevention device" means a device containing a minimum of two independently acting check valves together with an automatically operated pressure differential relief valve located between the two check valves. During normal flow and at the cessation of normal flow, the pressure between these two checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the check valves at less than the supply pressure. The unit must include tightly closing shut-off valves located at each end of the device, and each device shall be fitted with properly located test cocks.
- (U) "Service connection" means the terminal end of a service line from the public water system. If a meter is installed at the end of the service, then the service connection means the downstream end of the meter.
- (V) "System hazard" means a condition posing an actual or potential threat of damage to the physical properties of the public water system or a potable consumer's water system.
- (W) "Pollutional hazard" means a condition through which an aesthetically objectionable or degrading material not dangerous to health may enter the public water system or a potable consumer's water system.
- (X) "Used water" means any water supplied by a water purveyor from a public water system to a consumer's water system after it has passed through the service connection and is no longer under the control of the water purveyor.
- (Y) "Water purveyor" means the owner or operator of a public water system.
- (Z) "Ohio E.P.A." means the Ohio State Environmental Protection Agency.
- (AA) "Certified Backflow Tester" means a person Certified by the State of Ohio, Department of Health, Plumbing Unit, Backflow and Cross Connection Division.
- (BB) "Approved Backflow Testing Device" means a backflow testing device approved by the Director.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-125. Backflow Protection (Cont.)

R2 - Cross-Connections prohibited.

- (A) No person shall install or maintain a water service connection to any premises where actual or potential cross-connections to a public water system or a potable consumer's water system may exist unless such actual or potential cross-connections are abated or controlled to the satisfaction of the Director.
- (B) No person shall install or maintain any connection whereby water from an auxiliary water system may enter a public water system or potable consumer's water system unless the auxiliary water system and the method of connection and use of such system shall have been approved by the Director and by the Ohio E.P.A. as required by Section 6109.13 of the Revised Code of Ohio.

R3 - Surveys and investigations.

- (A) The Director, or his authorized representative, shall have the right to enter premises served by the public water system at all reasonable times for the purpose of making surveys and investigations of water use practices within the premises.
- (B) On request by the Director, or his authorized representative, the consumer shall furnish the water purveyor, or his authorized representative, information on water use practices within the consumer's premises.
- (C) Section (A) of this regulation does not relieve the consumer of the responsibility for conducting, or causing to be conducted, periodic surveys of water use practices on his premises to determine whether there are actual or potential cross-connections in the consumer's water system through which contaminants or pollutants could backflow into a public water system or a potable consumer's water system.

R4 - Where protection is required.

- (A) An approved backflow prevention device shall be installed on each service line to a consumer's water system serving a premise where, in the judgment of the Director or the Ohio E.P.A., a real or potential health, polluttional, or system hazard to the public water system exists. In residential, single-family accounts with an irrigation system where this

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-125. Backflow Protection (Cont.)

would result in redundant protection, a specific exemption may be granted by agreement between the Director and the local plumbing authority.

- (B) An approved backflow prevention device shall be installed on each service line to a consumer's water system serving premises where the following conditions exist:
 - (1) Premises having an auxiliary water system, unless such auxiliary system is accepted as an additional source by the Director and the source is approved by the Ohio E.P.A.
 - (2) Premises on which any substance is handled in such a fashion as to create an actual or potential hazard to a public water system. This shall include premises having sources or systems containing process fluids or waters originating from a public water system which are no longer under the control of the water purveyor;
 - (3) Premises having internal cross-connections that, in the judgment of the Director, are not correctable or intricate plumbing arrangements which make it impracticable to determine whether or not cross-connections exist;
 - (4) Premises where, because of security requirements or other prohibitions or restrictions, it is impossible or impractical to make a complete cross-connection survey;
 - (5) Premises having a repeated history of cross-connections being established or reestablished;
 - (6) Others specified by the Director or the Ohio E.P.A.
- (C) An approved backflow prevention device shall be installed at any point of connection between a public water system or a potable consumer's water system and an auxiliary water system, unless such auxiliary system is accepted as an additional source by the Director and the source is approved by the Ohio E.P.A.

R5 - Type of protection required.

- (A) The type of protection required under Sections (A), (B), and (C) of Rule 4 shall depend on the degree of hazard which exists as follows:

Sec. 401-125. Backflow Protection (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

- (1) An approved air gap separation shall be installed where a public water system may be contaminated with substances that could cause a severe health hazard;
 - (2) An approved air gap separation or an approved reduced pressure principle backflow prevention device shall be installed where a public water system may be contaminated with any substance that could cause a system or health hazard;
 - (3) An approved air gap separation or an approved reduced pressure principle backflow prevention device or an approved double check valve assembly shall be installed where a public water system may be polluted with any substance that could cause a pollutional hazard.
- (B) The type of protection required under Section (C) of Rule 4 shall be an approved air gap separation or an approved interchangeable connection.
- (C) Where an auxiliary water system is used as a secondary source of water for a fire protection system, the provisions of Section (B) of Rule 5 for an approved air gap separation or an approved interchangeable connection may be waived by the Director and the Ohio E.P.A. provided:
- (1) At premises where the auxiliary water system may be contaminated with substances that could cause a system or health hazard, a public water system or a potable consumer's water system shall be protected against backflow by installation of an approved reduced pressure principle backflow prevention device;
 - (2) At all other premises, a public water system or a potable consumer's water system shall be protected against backflow by installation of either an approved reduced pressure principle backflow prevention device or an approved double check valve assembly;
 - (3) A public water system or a potable consumer's water system shall be the primary source of water for the fire protection system;
 - (4) The fire protection system shall be normally filled with water from a public water system or a potable consumer's water system;

Sec. 401-125. Backflow Protection (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

- (5) The water in the fire protection system shall be used for fire protection only, with no other use of water from the fire protection system downstream from the approved backflow prevention device.

(D) Type of Backflow Protection Required-Domestic Water Services

An approved backflow prevention device of the type designated shall be installed on each domestic water service connection to the following types of facilities unless the Director determines that no real or potential health, pollutional, or system hazard to the public water system exists. This list is presented as a guideline and should not be construed as being complete.

Abbreviations used are as follows:

A.G. Air Gap Separation
R.P. Reduced Pressure Principle Backflow Preventer
D.C. Double Check Valve Backflow Preventer

<u>Type of Facility</u>	<u>Minimum Type of Protection</u>
Breweries, Distilleries, Bottling Plants	D.C.
Car Wash with Recycling System and/or Wax Eductor	R.P.
Chemical Plants	R.P.
Dairies	D.C.
Dentist Office	R.P.
Fertilizer Plants	R.P.
Film Laboratory or Processing Plant	R.P.
Food or Beverage Plant	D.C.
Hospitals, Clinics, Medical Buildings	R.P.
Laboratories	R.P.
Laundries & Dry Cleaning Plants	D.C.
Machine Tool Plants (Health or System Hazard)	R.P.
Machine Tool Plants (Pollutional Hazard)	D.C.
Metal Processing Plant (Health or System Hazard)	R.P.
Metal Processing Plant (Pollutional Hazard)	D.C.
Metal Plating Plant	R.P.
Morgues or Mortuaries	R.P.
Nursing Homes	R.P.
Packing Houses or Rendering Plants	R.P.
Paper Products Plant	R.P.
Petroleum Processing Plant	R.P.
Sec. 401-125. Backflow Protection (Cont.)	

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

<u>Type of Facility</u>	<u>Minimum Type of Protection</u>
Petroleum Storage Yard (Health or System Hazard)	R.P.
Petroleum Storage Yard (Pollutional Hazard)	D.C.
Pharmaceutical or Cosmetic Plant	R.P.
Piers, Docks or Waterfront Facilities	R.P.
Power Plants	R.P.
Radioactive Material Plants	R.P.
Restaurants, with Soap Eductors and/or Industrial Type Disposal	R.P.
Sand and Gravel Plants	D.C.
Schools with Laboratories Having Acid Wastes	R.P.
Sprinkling or Irrigation Systems	R.P.
Swimming Pools with Piped Fill Line	A.G. at pool
Sewage Treatment Plants	R.P.
Sewage Pumping Stations (Health or System Hazard)	R.P.
Veterinary Establishments	R.P.
Others specified by the Director	

In addition to and including those types of facilities listed above, an approved backflow prevention device of the type designated shall be installed on each domestic water service connection to any premises containing the following real or potential hazards.

	<u>Minimum Type of Protection</u>
Premises having an auxiliary water system not connected to public water system	R.P.
Premises having a water storage tank, reservoir, pond, or similar appurtenance	R.P.
Premises having a steam boiler, cooling system, or hot water heating system where chemical water conditions are used	R.P.
Premises having submerged inlets to equipment	R.P.
Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a health or system hazard (i.e., chemical storage plants, tank farms, bulk storage yards)	R.P.
Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a pollutional hazard (i.e., parks, play fields, cemeteries)	D.C.
Others specified by the Director	

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-125. Backflow Protection (Cont.)

- (E) Type of Backflow Protection Required-Fire Protection Services An approved backflow prevention device of the type designated shall be installed on each fire protection service to any premises where the fire protection system contains any of the following components unless the Director determines that no real or potential health, pollutional, or system hazard to the public water system exists.

Fire System Component	Minimum Type of Protection
(1) Auxiliary Water System	See Sections B & C of Rule 4
(2) Anti-Freeze Legs	R.P.
(3) Self-Draining Fire Hydrants on premises presenting a health or system hazard (i.e., Chemical Plants, Petroleum Storage Plants, Bulk Storage Yards, Stock Yards, Sewer Plants, or similar facilities where ground seepage of toxic materials may occur	R.P.
(4) Self-Draining Fire Hydrants on premises presenting a pollutional hazard (i.e., Apartment House, Office Complex, Fabricating Plants, or similar facilities where ground seepage of pollutional but not toxic materials may occur	D.C.
(5) Covered Gravity or Pressure Storage Tanks filled with water from Cincinnati Public System	D.C.
(6) Uncovered Storage Tanks or Reservoirs	R.P.
(7) Others specified by the Director	

R6 - Backflow prevention devices.

- (A) Any backflow prevention device required by Sections 3745-95-04 and 3745-95-05 of the Ohio Administrative Code and the Director shall be of a model or construction approved by the Director and the Ohio E.P.A.
- (B) Any backflow prevention device required shall be installed horizontally, at a location and in a manner approved by the Director and shall be installed by a Water Works Certified Person and at the expense of the water consumer. The device must be installed and initial test results returned to the Water Works within 30 days of the water service being turned on. The initial test shall be conducted in the presence of a Cincinnati Water Works representative unless specific authority to conduct the initial test without a Cincinnati Water Works representative present has been given. In addition, any backflow prevention device

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-125. Backflow Protection (Cont.)

required by Paragraphs (B) and (C) of Section 3745-95-05 of the Ohio Administrative Code and Sections (B) and (C) of Rule 5 shall be installed at a location and in a manner approved by the Ohio EPA as required by section 6109.13 of the Revised Code of Ohio.

- (C) It shall be the duty of the consumer, on any premises in which backflow prevention devices required by Sections 3745-95-04 and 3745-95-05 of the Ohio Administrative Code or the Water Works Ordinances, Rules, and Regulations are installed to have thorough inspections and operational tests made of the devices at least once every 12 months and in such manner as may be required by the Director or the Ohio Environmental Protection Agency. Tests or re-tests shall be performed with an approved backflow testing device. Tests and/or repairs shall be at the expense of the water consumer and shall be performed by a Certified Person approved by the Water Works as qualified to install, inspect, repair, overhaul and test backflow prevention devices. Records of such inspections, tests, repairs and overhauls shall be maintained by the consumer and returned on the proper form to the Cincinnati Water Works within 10 days of the test and/or repair of the device.
- (D) Backflow preventers shall be tested within 30 days of the mailing of the annual backflow preventer test notice issued by the Water Works. Repairs and re-tests must be completed within 14 days of the date of the failure. Failure to complete the annual test within 30 days of the original mailing or to repair or replace a device within the 14 day period after a test failure occurs may result in the immediate termination of water service. Manifold or dual settings of the devices should be considered for premises requiring uninterrupted water service. Backflow prevention devices set in manifold shall meet the minimum flow requirements of a single device of the proper size.
- (E) Existing backflow prevention devices approved by the Director or the Ohio E.P.A. prior to the effective date of this regulation and which are properly maintained shall, except for inspection, testing, and maintenance requirements, be excluded from the requirements of divisions (A) and (B) of Rule 6 if the Director and the Ohio E.P.A. are assured that the devices will satisfactorily protect the public water system.
- (F) Falsification of test results of backflow prevention devices or low pressure cut-off devices, current and authorized State Backflow Testing Certification Number or the signature of the authorized backflow tester

Sec. 401-125. Backflow Protection (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

will result in the immediate revocation of Water Works certification. Notification of such revocation will be made to the involved political subdivisions, the Cincinnati Building and Inspections Department, the Hamilton County Building Department, the State of Ohio Health Department, and the State of Ohio Environmental Protection Agency.

R7 - Booster pumps.

- (A) No person shall install or maintain a water service connection to any premises where a booster pump has been installed on the service line to or within such premises, unless such booster pump is equipped with a low pressure cutoff designed to shut-off the booster pump when the pressure in the service line on the suction-side of the pump drops to ten pounds per square inch gauge or less.
- (B) It shall be the duty of the water consumer to maintain the low pressure cut-off device in proper working order and to certify to the Director, annually, that the device is operable. Tests shall be at the expense of the water consumer and shall be performed by the Water Works or a Certified Person approved by the Water Works as qualified to inspect and test backflow prevention devices or low pressure cut-off devices.
- (C) The low pressure cut-off control for fire pumps shall conform to the Ohio E.P.A. "Specification for Low Suction Pressure Cut-Off Control for Stationary Fire Pumps."
- (D) The low pressure cutoff control for domestic pumps shall conform to the Ohio E.P.A. "Specification for Low Suction Cut-Off Control for Stationary Domestic Booster Pumps."

Sec. 401-126. Notification, Payment of Fees for Containment and Isolation Backflow Preventers; Consequences of Failure. The Cincinnati Water Works shall issue notices to the customer or the owner, the agent or the person in charge of the premises wherein a containment or isolation backflow device is located of the need to perform an annual containment and/or isolation device backflow test. The Cincinnati Water Works may charge a fee for said notice. Failure to have the containment or isolation backflow test done, or failure to provide results to the Cincinnati Water Works will result in the immediate termination of water service. The failure to pay the required fees or charge may result in the Cincinnati Water Works terminating water service.

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

Sec. 401-126. Notification, Payment of Fees for Isolation Backflow Preventers; Consequences of Failure (Cont.)

The termination of water service for failure to pay require fees or charges shall comport with those sections of this chapter and Cincinnati Water Works rules and regulations regarding termination of service for non-payment of a billing statement.

- R1 The annual notification for the testing of containment and isolation backflow preventers shall be set by the Cincinnati Water Works. The Cincinnati Water Works shall issue all necessary notices.
- R2 - Administrative charges and fees involved in notification of backflow preventer tests shall be determined by the Director of the Cincinnati Water Works.
- R3 - The water consumer or agent, owner or person in charge of the premises is responsible for ensuring fees are paid, backflow tests are completed and that the test results are immediately provided to the appropriate department.
- R4 - Proper test results for isolation backflow preventers shall be determined by the Director of Buildings and Inspections.
- R5 - Isolation backflow preventers may be tested only by those persons meeting the qualifications established by the Director of the Buildings and Inspection Department.
- R6 -
 - a) The Cincinnati Water Works shall not discontinue water service for failure to provide test results or for failure to pay the fees or charges for administrative processing without giving the customer in default, whether or not the customer is a landlord, owners, or other, at least seven calendar days prior written notice thereof. Any notice required by this section shall include paragraphs (d) and (e) of this section.
 - b) At least seven days prior to disconnection of water service to any user(s) not responsible for providing proper containment or isolation backflow preventer test results or the payment of fees or charges, a notice of the intent to disconnect water service shall be posted or affixed upon the premises in a conspicuous location or personally served upon the user(s), owner or agent. Such notice shall include the rights and obligations as set forth in paragraph (d) and (e) of this section.
 - c) When the failure to provide completed backflow test results, or the failure to pay the appropriate fees or charges for administrative processing, requires the posting of a disconnection notice at the premises or personally serving the

Sec. 401-126. Notification, Payment of Fees for Isolation Backflow Preventers; Consequences of Failure (Cont.)

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

R6 - c) (cont.)

notice upon the owner, user(s) or agent at the premises, there shall be a charge, determined by the director, to the customer responsible for the testing of the backflow prevention device. The charge shall be based on the cost to the Water Works of posting or personally serving a notice at the premises. The director shall periodically review the cost and adjust the charge if necessary. This charge is in addition to any other fees or charges. The Water Works shall not be responsible for failure of any customer or occupant to observe, read or understand a disconnection notice, nor for the removal or destruction of any notice posted or personally served or for any marks or damage caused by affixing or removing a disconnection notice.

d) Any such customer responsible for payment of fees or charges, or the testing of the containment or isolation backflow preventer, who causes the disconnection of water service by failure or refusal to pay the charge or by not completing the annual containment or isolation backflow preventer test, except while repairs are in progress or during emergency repairs, may be liable for compensatory damage to any tenant who is denied the benefit of water service so disconnected.

e) If a tenant pays in full the fees or charges herein required in order to avoid disconnection of water service, and the backflow device tests have been accomplished and the results forwarded to the Cincinnati Water Works, the tenant shall have the right to deduct the amount of such payment from any future payment of rent.

DIVISION M:

PENALTIES

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

DIVISION M - PENALTIES

Sec. 401-999. Penalties. Whoever violates any provision of this chapter for which another penalty is not specifically provided shall be fined not more than two hundred dollars \$200.

Sec. 401-999A. Violation of Section 401-3, 401-4, or 401-6. Whoever violates any provision of Sections 401-3, 401-4, or 401-6 shall be fined not more than \$50.

Punishment under this section shall not relieve an offender of civil liability for any damage caused by the offender's unlawful acts.

APPENDIX

CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

APPENDIX

Standard Drawings

- 103-2 For Connection to Fire Hydrant for Construction Water
- 108-1 Material & Construction Specifications for Meter Pit Construction
- 108-2A Standard 3/4" & 1" Service Branch With Basement Remote Meter Setting
- 108-2B Standard 3/4" & 1" Service Branch With Slab Remote Meter Setting
- 108-3 Standard Outside Meter Setting for 5/8", 3/4", and 1" Meters
- 108-3A Standard Outside Meter Setting For 1" Meters
- 108-3B Standard 5/8" Remote Inside Meter Coupling Setting
- 108-3C Standard 3/4" & 1" Remoted Inside Meter Coupling Setting
- 108-3D Standard AMR Outside 5/8" - 2" Meter Setting
- 108-4 Standard Outside Meter Setting for 1 1/2" and 2" Meters
- 108-4A Standard 1-1/2" & 2" Inside Meter Setting
- 108-5 Piping Arrangement, Domestic Meters 3" & Larger
- 108-6 Piping Arrangement, Detector Check Valve Assembly
- 108-6A Buried Piping Arrangement Detector Check Valve Assembly
- 108-7 Standard Meter Setting, Domestic Meters 3" or Larger
- 108-7A Standard Meter Inside Domestic 3" or Larger
- 108-7D AMR Meter Setting Domestic Meters 3" or Larger
- 108-8 Detector Check Valve Setting, Fire Branch Only
- 108-8A Buried Detector Check Valve Setting Fire Branch Only
- 108-8B Detector Check Inside Setting Fire Branch Only
- 108-9 Dual Service Branch Setting 2" & Smaller Domestic Meter
- 108-9A Buried Dual Service Branch Setting 2" & Smaller Domestic Meter
- 108-10 Dual Service Branch Setting 3" & Larger Domestic Meter
- 108-10A Dual Service Branch Inside Setting 3" & Larger Domestic Meter
- 108-11 Piping Arrangement, Domestic Meters 3" & Larger With Backflow Preventers
- 108-12 Piping Arrangement, Detector Check Valve Assembly With Backflow Preventers
- 108-13 Standard Meter Setting, Meters 3" & Larger With Backflow Preventer
- 108-13A Standard Meter Inside Domestic 3" or Larger With Backflow Preventer
- 108-14 Detector Check Setting, Fire Branch Only With Backflow Preventer
- 108-14A Detector Check Inside Setting Fire Branch Only With Backflow Preventer
- 108-15 Dual Service Branch Setting 3/4" & 1" Meter With Backflow Preventer
- 108-15A Dual Service Branch Inside Setting 3/4" & 1" Meter With Backflow Preventer
- 108-16 Dual Service Branch Setting 1-1/2" & 2" Meter With Backflow Preventer
- 108-16A Dual Service Inside Setting 1-1/2" & 2" Meter With Backflow Preventer
- 108-17 Dual Service Branch Setting 3" & Larger Domestic Meter With Backflow Preventer

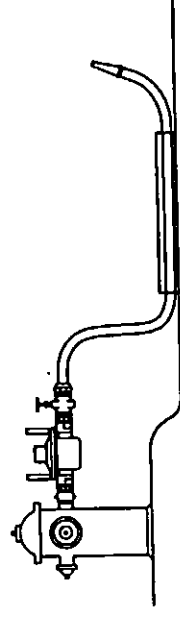
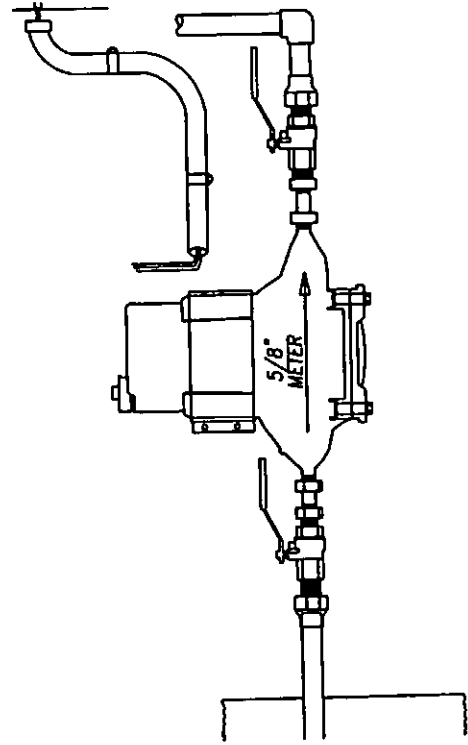
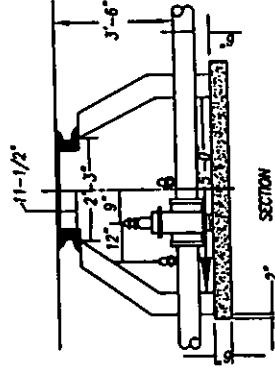
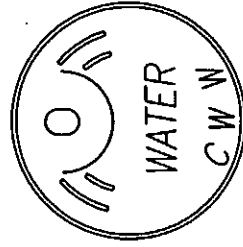
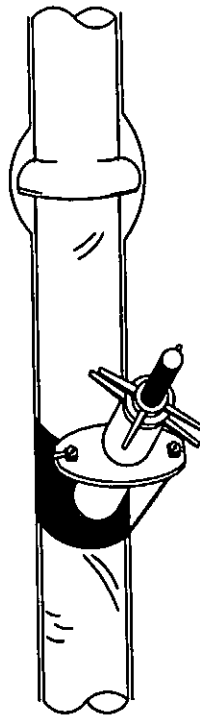
CINCINNATI WATER WORKS LAWS, ORDINANCES, RULES AND REGULATIONS

APPENDIX (Cont.)

- 108-17A Dual Service Branch Inside Setting 3" & Larger Domestic Meter With Backflow Preventer
- 108-18 3/4" & 1" Double Check Valve Backflow Preventer in Frost-proof Setting
- 108-19 1-1/2" & 2" Double Check Valve Backflow Preventer in Frost-proof Setting
- 108-20 Inside Setting of Backflow Preventer
- 108-21 Standard Pit Double Check Valve Backflow Preventer Only
- 108-22 Standard Pit for Reduced Pressure Backflow Preventer
- E-477-M Roadway Box
- E-476-M Curb Box

DRAWINGS

CINCINNATI WATER WORKS STANDARD DRAWINGS



ENGINEERING DIVISION

PAUL E. TOMES, P.E. CHIEF ENGINEER

CINCINNATI WATER WORKS STANDARD DRAWINGS INDEX

101 CONCRETE BLOCKING FOR CAST IRON FITTINGS

- 101-1 HORIZONTAL CAST IRON BENDS
- 101-2 BOTTOM VERTICAL CAST IRON BENDS
- 101-3 TOP VERTICAL CAST IRON BENDS
- 101-4 TOP AND BOTTOM VERTICAL BENDS--FULL ENCASEMENT
- 101-5 CAST IRON TEES
- 101-6 CAST IRON OFFSET BENDS
- 101-7 FIRE HYDRANT BLOCKING

102 CONCRETE BLOCKING FOR CONCRETE PIPE FITTINGS

- 102-1 CONCRETE PIPE HORIZONTAL BENDS
- 102-2 CONCRETE PIPE BOTTOM VERTICAL BENDS
- 102-3 CONCRETE PIPE TOP VERTICAL BENDS
- 102-4 CONCRETE PIPE TEES

103 FIRE HYDRANT SETTINGS

- 103-1 MEASUREMENTS
- 103-1A RETAINING WALL

104 WATER WORKS CHAMBERS

- 104-1 4" THRU 12" VALVE CHAMBERS
- 104-1A 4" THRU 12" VALVE CHAMBERS (PRECAST CONCRETE)
- 104-2 AIR COCK CHAMBERS
- 104-2A AIR COCK CHAMBERS (PRECAST CONCRETE)

- 104-3 6"-16" FLANGE OUTLET & TAPPING VALVE CHAMBER
- 104-3A 24"-36" FLANGE OUTLET & TAPPING VALVE CHAMBER
- 104-4 MANHEAD CHAMBERS
- 104-5A BUTTERFLY VALVE CHAMBER POURED IN PLACE
- 104-5B BUTTERFLY VALVE VAULT 16" PRE-CAST
- 104-6 12" VALVE CHAMBER FOR WATER PRESSURE OVER 100 P.S.I.
- 104-6A 12" VALVE CHAMBER FOR WATER PRESSURE OVER 100 P.S.I. (PRECAST CONCRETE)

105 DETAIL CONSTRUCTION STANDARDS

- 105-1 CREEK CROSSING
- 105-2 HIGHWAY AND RAILROAD CROSSINGS
- 105-3 WELDED TYPE TIED JOINT CONCRETE PIPE
- 105-4 EXCAVATION FOR WATER WORKS CONNECTION
- 105-5 POLYETHYLENE ENCASEMENT - GRAY AND DUCTILE IRON PIPE
- 105-5A TAPPING POLYETHYLENE ENCASED PIPE
- 105-6 2" COPPER PIPE INSTALLATION FOR CUL-DE-SAC
- 105-7 PRIVATE DEVELOPMENTS ON PANHANDLE LOTS
- 105-8 AIR RELEASE ASSEMBLY STD. FOR WATER MAINS ON BRIDGES

106 BACKFILL

- 106-1 TYPICAL BACKFILL REQUIREMENT

107 SERVICE BRANCHES

- 107-1 SERVICE BRANCH INSTALLATION WITH CURB BOX
- 107-2 SERVICE BRANCH INSTALLATION WITHOUT CURB BOX

CINCINNATI WATER WORKS STANDARD DRAWINGS INDEX

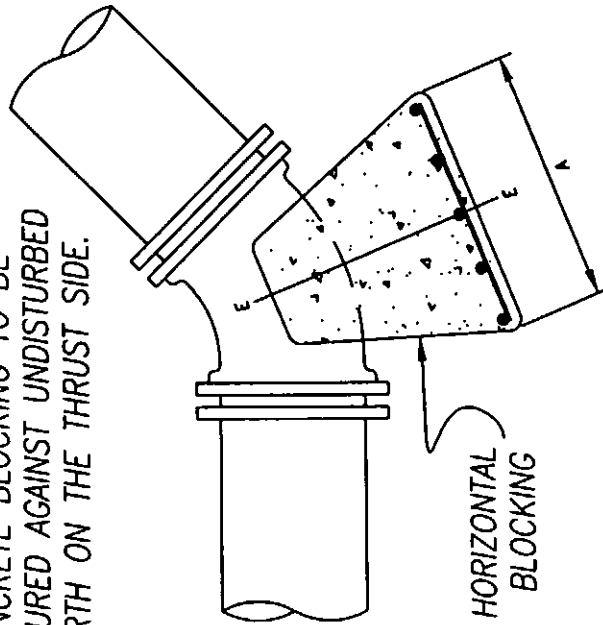
108	METER SETTING		
108-1	MATERIAL AND CONSTRUCTION SPECIFICATIONS FOR METER PIT CONSTRUCTION AND EMR REQUIREMENTS	108-10A	INSIDE DUAL SERVICE BRANCH 3" AND LARGER AND DETECTOR CHECK EMR METER
108-2A	3/4" AND 1" SERVICE BRANCH WITH REMOTE METER SETTING	108-10B	PIT - DUAL SERVICE BRANCH - 3" AND LARGER AND DETECTOR CHECK EMR METERS
108-2B	3/4" AND 1" SERVICE BRANCH WITH SLAB REMOTE METER SETTING	108-11	PIPING ARRANGEMENT DOMESTIC METERS 3" & LARGER WITH BACKFLOW PREVENTER
108-2C	STANDARD 5/8" REMOTE / EMR INSIDE METER COUPLING SETTING DETAILS	108-12	PIPING ARRANGEMENT DETECTOR CHECK VALVE WITH BACKFLOW PREVENTER
108-2D	3/4" AND 1" REMOTE / EMR INSIDE METER COUPLING SETTING DETAILS	108-13	PIT - METER SETTING METERS 3" & LARGER WITH DOUBLE CHECK BACKFLOW PREVENTER
108-2E	INSIDE - 3/4" AND 1" SERVICE BRANCH WITH EMR METER SETTING	108-13A	INSIDE EMR METER 3" & LARGER WITH BACKFLOW PREVENTER
108-3	OUTSIDE FROST PROOF BOX METER SETTINGS 5/8" AND 3/4" METERS	108-14	PIT - DETECTOR CHECK PIT SETTING FIRE BRANCH ONLY WITH DETECTOR CHECK BACKFLOW PREVENTER
108-3A	OUTSIDE FROST PROOF BOX METER SETTINGS FOR 1" METERS	108-14A	INSIDE DETECTOR CHECK EMR METER SETTING FIRE BRANCH ONLY WITH BACKFLOW PREVENTER
108-3B	OUTSIDE FROST PROOF BOX METER SETTING FOR 5/8" - 2" EMR METERS	108-15	PIT - DUAL SERVICE BRANCH SETTING & 3/4" OR 1" METER WITH BACKFLOW PREVENTER
108-4	OUTSIDE METER SETTING FOR 1-1/2" AND 2" METERS	108-15A	INSIDE DUAL SERVICE BRANCH EMR SETTING 3/4" & 1" METER WITH BACKFLOW PREVENTER
108-4A	INSIDE 1-1/2" AND 2" REMOTE / EMR METER SETTING DETAILS	108-15B	PIT - FULLY METERED FIRE SYSTEM
108-5	PIPING ARRANGEMENT DOMESTIC METERS 3" AND LARGER	108-15C	INSIDE - FULLY METERED FIRE SYSTEM
108-6	PIPING ARRANGEMENT DETECTOR CHECK VALVE	108-16	PIT - DUAL SERVICE BRANCH SETTING & 1-1/2" OR 2" METER WITH BACKFLOW PREVENTER
108-6A	BURIED PIPING ARRANGEMENT DETECTOR CHECK VALVE	108-16A	INSIDE DUAL SERVICE SETTING 1-1/2" & 2" EMR METER WITH BACKFLOW PREVENTER
108-7	PIT METER SETTING DOMESTIC METER 3" AND LARGER	108-17	PIT - DUAL SERVICE BRANCH SETTING 3" & LARGER, DOMESTIC METER WITH BACKFLOW PREVENTER
108-7A	INSIDE EMR METER SETTING DOMESTIC 3" OR LARGER	108-17A	INSIDE DUAL SERVICE BRANCH SETTING 3" & LARGER DOMESTIC METER EMR WITH BACKFLOW PREVENTER
108-7B	PIT EMR METER SETTING DOMESTIC METER 3" & LARGER	108-18	OUTSIDE - 3/4" & 1" DOUBLE CHECK BACKFLOW PREVENTER IN FROST PROOF SETTING
108-8	PIT DETECTOR CHECK VALVE SETTING - FIRE BRANCH ONLY	108-19	OUTSIDE - 1-1/2" & 2" DOUBLE CHECK BACKFLOW PREVENTER IN FROST PROOF SETTING
108-8A	BURIED - DETECTOR CHECK VALVE SETTING FIRE BRANCH ONLY	108-20	INSIDE SETTING OF BACKFLOW PREVENTER
108-8B	INSIDE DETECTOR CHECK EMR METER SETTING FIRE BRANCH ONLY	108-21	OUTSIDE FREEZE PROTECTION BACKFLOW DEVICE ENCLOSURE
108-9	PIT DUAL SERVICE BRANCH SETTING 2" & SMALLER DOMESTIC METER	108-22	PIT FORDOUBLE CHECK BACKFLOW PREVENTER
108-9A	BURIED DUAL SERVICE BRANCH SETTING 2" & SMALLER DOMESTIC METER	108-23	CONNECTION TO FIRE HYDRANT FOR TEMPORARY WATER
108-9B	PIT - DUAL SERVICE BRANCH SETTING EMR DETECTOR CHECK & 2" & SMALLER DOMESTIC EMR METER	108-24	MANIFOLD METER FROST PROOF BOX SETTING
108-9C	BURIED DUAL SERVICE BRANCH EMR DETECTOR CHECK SETTING 2" & SMALLER DOMESTIC EMR METER	108-25	MANIFOLD METER - INSIDE SETTING
108-10	PIT - DUAL SERVICE BRANCH PIT SETTING 3" & LARGER DOMESTIC METER	E-476-M	CURB BOX WITH A CAST IRON LID & RING, PLASTIC TOP & BOTTOM
		E-477-M	ROADWAY BOX WITH A CAST IRON LID & RING, PLASTIC TOP & BOTTOM

NOTE:

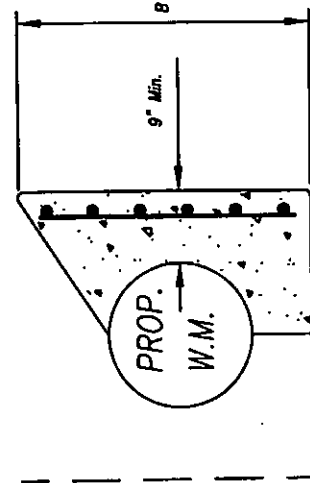
PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.

NOTE:

CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH ON THE THRUST SIDE.



3/4" REINFORCING BARS TO BE PLACED ON THRUST SIDE 6" O.C.



HORIZONTAL SECTION E - E

TYPICAL BLOCKING DETAIL
CAST IRON BENDS - HORIZONTAL

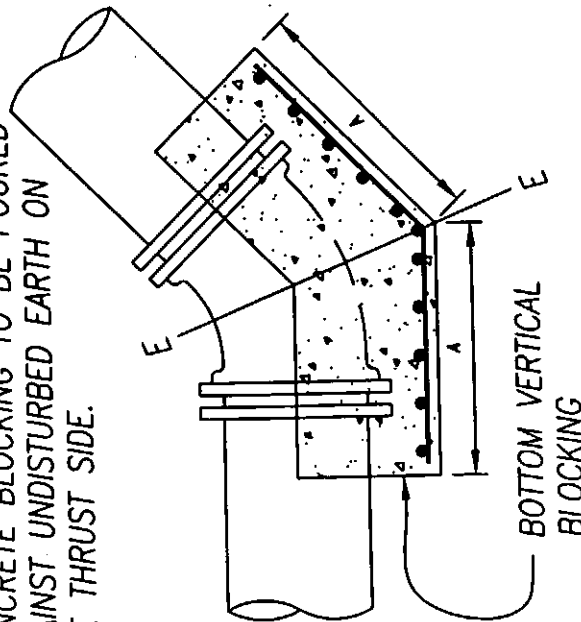
DATE 10/22/95	CINCINNATI WATER WORKS ENGINEERING DIVISION	
	APPROVED <i>Paul E. Jones</i>	STANDARD DRAWING 101-1

IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12X12-W5.8XW5.8) @ 42 LBS. PER 100 S.F.

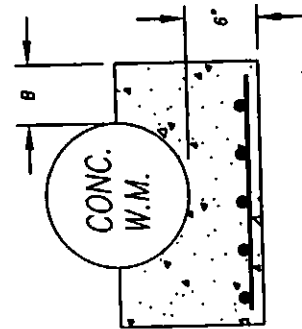
SIZE	BEND ANGLE	75 P.S.I. & UNDER				75 P.S.I. TO 125 P.S.I.				125 P.S.I. TO 200 P.S.I.			
		A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL
4	11 1/4	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	14	1'6"	1'6"	0.1	14
	22 1/2	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	14	1'6"	1'6"	0.1	14
	45	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	14	1'6"	1'6"	0.1	14
6	11 1/4	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	14	1'6"	1'6"	0.1	14
	22 1/2	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	14	1'6"	1'6"	0.1	14
	45	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	14	2'0"	1'6"	0.1	16
8	11 1/4	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	17	1'6"	1'6"	0.1	17
	22 1/2	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	17	1'6"	1'6"	0.1	17
	45	2'0"	1'6"	0.2	-	2'0"	1'6"	0.2	20	2'6"	2'0"	0.2	24
10	11 1/4	1'6"	1'6"	0.1	-	1'6"	1'6"	0.1	14	1'6"	1'6"	0.1	14
	22 1/2	1'6"	1'6"	0.1	-	2'0"	1'6"	0.2	18	2'0"	2'0"	0.2	24
	45	2'6"	1'6"	0.2	-	3'0"	2'0"	0.3	36	3'0"	2'6"	0.4	40
12	11 1/4	1'6"	1'6"	0.1	-	1'6"	2'0"	0.2	20	1'6"	2'0"	0.2	18
	22 1/2	1'6"	2'0"	0.2	-	2'0"	2'0"	0.2	24	2'6"	2'6"	0.3	30
	45	2'6"	2'0"	0.3	-	3'6"	2'6"	0.4	45	3'6"	3'6"	0.6	63
16	11 1/4	1'6"	2'0"	0.2	16	2'0"	2'0"	0.2	21	2'0"	2'6"	0.3	30
	22 1/2	2'6"	2'6"	0.3	24	3'0"	2'6"	0.4	38	3'0"	3'6"	0.6	63
	45	3'6"	3'0"	0.6	54	4'0"	3'6"	0.8	68	4'0"	5'0"	1.2	120
20	11 1/4	2'0"	2'6"	0.3	21	2'6"	2'6"	0.4	30	3'0"	2'6"	0.5	45
	22 1/2	3'6"	2'6"	0.6	45	3'6"	3'6"	0.8	63	4'0"	4'0"	1.2	96
	45	4'6"	3'6"	1.0	74	5'0"	4'6"	1.4	108	6'0"	5'0"	2.2	180

NOTE:
PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.

NOTE:
CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH ON THE THRUST SIDE.



3/4" REINFORCING BARS TO BE PLACED ON THRUST SIDE 6" O.C.



BOTTOM VERTICAL SECTION E - E

SPECIAL REQUIREMENTS

1. WHERE THE DISTANCE BETWEEN CONCRETE BLOCKING FOR A TOP VERTICAL BEND AND BLOCKING FOR A BOTTOM VERTICAL BEND IS LESS THAN 3 FEET APART, STANDARD DRAWING NO. 101-4 SHALL APPLY.
2. THIS STANDARD DRAWING DOES NOT APPLY TO CREEK CROSSING, SEE STANDARD DRAWING NO. 105-1.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12X12-W5.8XW5.8) @ 42 LBS. PER 100 S.F.

TYPICAL BLOCKING DETAIL CAST IRON BENDS - BOTTOM VERTICAL

DATE
10/23/86

CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED

Paul E. Tonne

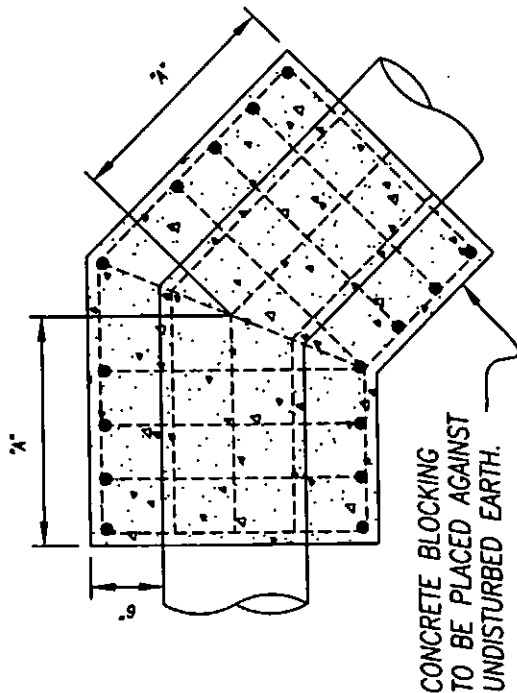
STANDARD DRAWING

101-2

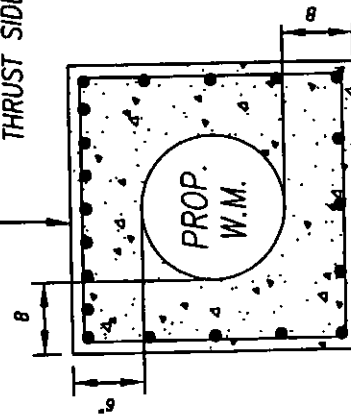
SIZE	BEND ANGLE	75 P.S.I. & UNDER				75 P.S.I. TO 125 P.S.I.				125 P.S.I. TO 200 P.S.I.			
		A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL
4	11 1/4	1'0"	0'6"	0.1	NA	1'0"	0'6"	0.1	15	1'0"	0'6"	0.1	15
	22 1/2	1'0"	0'6"	0.1	NA	1'0"	0'6"	0.1	15	1'0"	0'6"	0.1	15
	45	1'0"	0'6"	0.1	NA	1'0"	0'6"	0.1	15	1'0"	0'6"	0.1	15
6	11 1/4	1'0"	0'6"	0.1	-	1'0"	0'6"	0.1	16	1'0"	0'6"	0.1	16
	22 1/2	1'0"	0'6"	0.1	-	1'0"	0'6"	0.1	16	1'0"	0'6"	0.1	16
	45	1'0"	0'6"	0.1	-	1'0"	0'6"	0.1	16	1'0"	0'6"	0.1	16
8	11 1/4	1'0"	0'6"	0.1	-	1'0"	0'6"	0.1	20	1'0"	0'6"	0.1	20
	22 1/2	1'0"	0'6"	0.1	-	1'0"	0'6"	0.1	20	1'0"	0'6"	0.1	20
	45	1'0"	0'6"	0.1	-	1'0"	0'6"	0.1	20	1'0"	0'6"	0.1	20
10	11 1/4	1'0"	0'6"	0.2	-	1'0"	0'6"	0.2	21	1'0"	0'6"	0.2	21
	22 1/2	1'0"	0'6"	0.2	-	1'0"	0'6"	0.2	21	1'0"	0'6"	0.2	21
	45	1'0"	0'6"	0.2	-	1'0"	0'6"	0.2	21	1'0"	0'6"	0.2	21
12	11 1/4	1'0"	0'6"	0.2	-	1'0"	0'6"	0.2	25	1'0"	0'6"	0.2	25
	22 1/2	1'0"	0'6"	0.2	-	1'0"	0'6"	0.2	25	1'0"	0'6"	0.2	25
	45	1'0"	0'6"	0.2	-	1'0"	0'6"	0.2	25	1'0"	0'6"	0.2	25
16	11 1/4	1'6"	0'6"	0.3	-	2'0"	0'6"	0.4	46	3'0"	0'6"	0.5	58
	22 1/2	1'0"	0'6"	0.3	27	1'0"	0'6"	0.3	27	1'0"	0'6"	0.3	27
	45	1'0"	0'6"	0.3	27	1'0"	0'6"	0.3	27	1'0"	0'6"	0.3	27
20	11 1/4	1'0"	0'6"	0.3	31	1'0"	0'6"	0.3	31	1'0"	0'6"	0.3	31
	22 1/2	1'0"	0'6"	0.5	49	2'0"	0'6"	0.7	71	3'0"	0'6"	0.9	94
	45	1'0"	0'6"	0.5	44	2'0"	0'6"	0.6	58	3'0"	0'6"	0.9	84
	45	3'0"	0'6"	0.9	80	4'0"	0'6"	1.2	110	5'6"	0'6"	1.6	150

NOTE:

1. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I. CONCRETE AND STEEL QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.
- 2.



ALL BARS 3/4" Ø 12" O.C.
EXCEPT LONG BARS ON
THRUST SIDE 6" O.C.



SPECIAL REQUIREMENTS

1. WHERE THE DIMENSIONS INDICATED WILL NOT PERMIT THE BLOCKING TO BEAR AGAINST UNDISTURBED EARTH, WATER MAIN SHALL BE ENCASED AS SHOWN ON STANDARD DRAWING NO. 101-4.
2. WHERE THE DISTANCE BETWEEN CONCRETE BLOCKING FOR A TOP VERTICAL BEND AND BLOCKING FOR A BOTTOM VERTICAL BEND IS LESS THAN 3 FEET APART, STANDARD DRAWING NO. 101-4 SHALL APPLY.
3. THIS STANDARD DRAWING DOES NOT APPLY TO CREEK CROSSING, SEE STANDARD DRAWING NO. 105-1.

NOTE:

IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 x 12 - W 5.8 x W 5.8) @ 42 LBS PER. 100 S.F.

SIZE	BEND ANGLE	75 P.S.I. & UNDER				75 P.S.I. TO 125 P.S.I.				125 P.S.I. TO 200 P.S.I.			
		A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL
4"	11-1/4°	1'0"	0'9"	0.2	36	1'0"	0'9"	0.2	36	1'0"	0'9"	0.2	36
	22-1/2°	1'0"	0'9"	0.2	36	1'0"	0'9"	0.2	36	1'6"	0'9"	0.3	55
	45°	1'6"	0'9"	0.3	55	1'6"	0'9"	0.3	55	2'0"	1'0"	0.7	100
6"	11-1/4°	1'0"	0'9"	0.3	44	1'0"	0'9"	0.3	44	1'6"	0'9"	0.4	67
	22-1/2°	1'6"	0'9"	0.4	67	1'6"	0'9"	0.4	67	2'0"	0'9"	0.5	89
	45°	2'0"	0'9"	0.5	89	2'0"	1'0"	0.8	116	3'0"	1'0"	1.1	174
8"	11-1/4°	1'6"	0'9"	0.5	79	1'6"	0'9"	0.5	79	1'6"	0'9"	0.5	79
	22-1/2°	1'6"	0'9"	0.5	79	2'0"	0'9"	0.6	105	2'6"	1'0"	1.1	150
	45°	2'0"	1'0"	0.9	120	3'6"	1'0"	1.5	210	5'0"	1'0"	2.1	300
10"	11-1/4°	1'6"	0'9"	0.5	86	1'6"	0'9"	0.5	86	2'0"	0'9"	0.7	115
	22-1/2°	1'6"	0'9"	0.5	86	2'0"	1'0"	1.0	124	3'0"	1'0"	1.4	186
	45°	3'0"	1'0"	1.4	186	4'6"	1'0"	2.2	279	7'0"	1'0"	3.4	435
12"	11-1/4°	1'6"	0'9"	0.6	90	1'6"	0'9"	0.6	90	2'0"	0'9"	0.8	119
	22-1/2°	2'0"	0'9"	0.8	119	2'6"	1'0"	1.3	168	4'0"	1'0"	2.1	240
	45°	4'0"	1'0"	2.1	240	6'0"	1'0"	3.2	403	9'0"	1'0"	4.7	605
16"	11-1/4°	1'6"	0'9"	0.7	100	1'6"	0'9"	0.7	100	2'0"	1'0"	1.3	155
	22-1/2°	2'0"	1'0"	1.3	155	3'6"	1'0"	2.2	271	6'6"	1'0"	4.1	503
	45°	6'0"	1'0"	3.8	464	10'0"	1'0"	6.3	774	9'6"	1'6"	9.6	963

**TYPICAL BLOCKING DETAIL
CAST IRON BENDS - TOP VERTICAL**

DATE
11/9/96

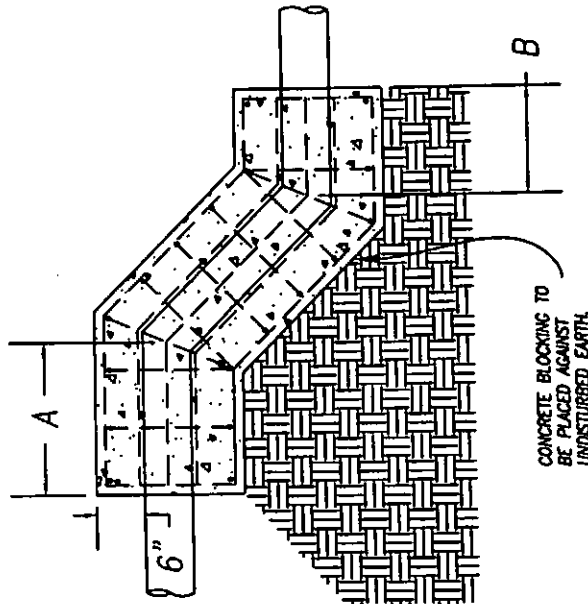
CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED

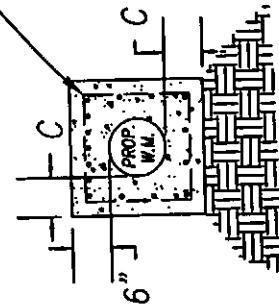
Paul E. Tomco

STANDARD DRAWING

101-3



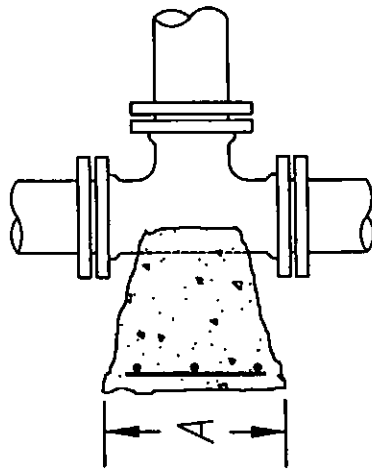
ALL BARS 3/4" x 12" O.C.
EXCEPT LONG BARS ON TOP 6" O.C.



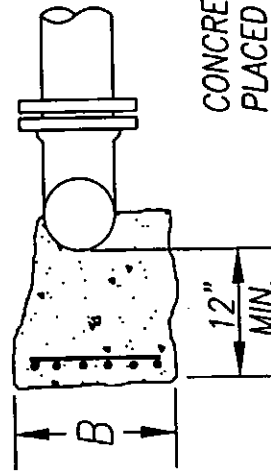
SIZE	BEND ANGLE	75 P.S.I. & UNDER						75 P.S.I. TO 125 P.S.I.						125 P.S.I. TO 200 P.S.I.																	
		A			B			C			A			B			C			A			B			C					
		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.		CONC. C.Y. PER LIN. FT.	STEEL LBS. PER LIN. FT.				
4"	11-1/4	1'-0"	1'-0"	0'-9"	.10	18	1'-0"	1'-0"	0'-9"	.10	18	1'-0"	1'-0"	0'-9"	.10	18	1'-0"	1'-0"	0'-9"	.10	18	1'-0"	1'-0"	0'-9"	.10	18	1'-0"	1'-0"	0'-9"	.10	18
	22-1/2	1'-0"	1'-0"	0'-9"	.10	18	1'-0"	1'-0"	0'-9"	.10	18	1'-0"	1'-0"	0'-9"	.10	18	1'-6"	1'-0"	0'-9"	.10	18	1'-6"	1'-0"	0'-9"	.10	18	1'-6"	1'-0"	0'-9"	.10	18
	45	1'-6"	1'-0"	0'-9"	.10	18	1'-6"	1'-0"	0'-9"	.10	18	1'-6"	1'-0"	0'-9"	.10	18	2'-0"	1'-0"	1'-0"	.18	25	2'-0"	1'-0"	1'-0"	.18	25	2'-0"	1'-0"	1'-0"	.18	25
6"	11-1/4	1'-0"	1'-0"	0'-9"	.15	22	1'-0"	1'-0"	0'-9"	.15	22	1'-0"	1'-0"	0'-9"	.15	22	1'-6"	1'-0"	0'-9"	.15	22	1'-6"	1'-0"	0'-9"	.15	22	1'-6"	1'-0"	0'-9"	.15	22
	22-1/2	1'-6"	1'-0"	0'-9"	.15	22	1'-6"	1'-0"	0'-9"	.15	22	1'-6"	1'-0"	0'-9"	.15	22	2'-0"	1'-0"	0'-9"	.15	22	2'-0"	1'-0"	0'-9"	.15	22	2'-0"	1'-0"	0'-9"	.15	22
	45	2'-0"	1'-0"	0'-9"	.15	22	2'-0"	1'-0"	0'-9"	.15	22	2'-0"	1'-0"	0'-9"	.20	29	3'-0"	1'-0"	1'-0"	.20	29	3'-0"	1'-0"	1'-0"	.20	29	3'-0"	1'-0"	1'-0"	.20	29
8"	11-1/4	1'-6"	1'-0"	0'-9"	.17	26	1'-6"	1'-0"	0'-9"	.17	26	1'-6"	1'-0"	0'-9"	.17	26	1'-6"	1'-0"	0'-9"	.17	26	1'-6"	1'-0"	0'-9"	.17	26	1'-6"	1'-0"	0'-9"	.17	26
	22-1/2	1'-6"	1'-0"	0'-9"	.17	26	1'-6"	1'-0"	0'-9"	.17	26	2'-0"	1'-0"	0'-9"	.17	26	2'-6"	1'-0"	1'-0"	.23	30	2'-6"	1'-0"	1'-0"	.23	30	2'-6"	1'-0"	1'-0"	.23	30
	45	2'-0"	1'-0"	1'-0"	.23	30	3'-6"	1'-0"	1'-0"	.23	30	3'-6"	1'-0"	1'-0"	.23	30	5'-0"	1'-6"	1'-0"	.23	30	5'-0"	1'-6"	1'-0"	.23	30	5'-0"	1'-6"	1'-0"	.23	30
10"	11-1/4	1'-6"	1'-0"	0'-9"	.17	29	1'-6"	1'-0"	0'-9"	.17	29	1'-6"	1'-0"	0'-9"	.17	29	1'-6"	1'-0"	0'-9"	.17	29	2'-0"	1'-0"	0'-9"	.17	29	2'-0"	1'-0"	0'-9"	.17	29
	22-1/2	1'-6"	1'-0"	0'-9"	.17	29	2'-0"	1'-0"	0'-9"	.17	29	2'-0"	1'-0"	0'-9"	.23	31	3'-0"	1'-0"	1'-0"	.23	31	3'-0"	1'-0"	1'-0"	.23	31	3'-0"	1'-0"	1'-0"	.23	31
	45	3'-0"	1'-0"	1'-0"	.23	31	4'-6"	1'-6"	1'-0"	.23	31	4'-6"	1'-6"	1'-0"	.23	31	7'-0"	2'-0"	1'-0"	.23	31	7'-0"	2'-0"	1'-0"	.23	31	7'-0"	2'-0"	1'-0"	.23	31
12"	11-1/4	1'-6"	1'-0"	0'-9"	.20	30	1'-6"	1'-0"	0'-9"	.20	30	1'-6"	1'-0"	0'-9"	.20	30	2'-0"	1'-0"	0'-9"	.20	30	2'-0"	1'-0"	0'-9"	.20	30	2'-0"	1'-0"	0'-9"	.20	30
	22-1/2	2'-0"	1'-0"	0'-9"	.20	30	2'-6"	1'-0"	1'-0"	.26	40	2'-6"	1'-0"	1'-0"	.26	40	4'-0"	1'-6"	1'-0"	.26	40	4'-0"	1'-6"	1'-0"	.26	40	4'-0"	1'-6"	1'-0"	.26	40
	45	4'-0"	1'-0"	1'-0"	.26	40	6'-0"	2'-0"	1'-0"	.26	40	6'-0"	2'-0"	1'-0"	.26	40	9'-0"	3'-0"	1'-0"	.26	40	9'-0"	3'-0"	1'-0"	.26	40	9'-0"	3'-0"	1'-0"	.26	40
16"	11-1/4	1'-6"	1'-0"	0'-9"	.24	34	1'-6"	1'-0"	0'-9"	.24	34	1'-6"	1'-0"	0'-9"	.24	34	2'-0"	1'-0"	1'-0"	.32	39	2'-0"	1'-0"	1'-0"	.32	39	2'-0"	1'-0"	1'-0"	.32	39
	22-1/2	2'-0"	1'-0"	1'-0"	.32	39	3'-6"	1'-6"	1'-0"	.32	39	3'-6"	1'-6"	1'-0"	.32	39	6'-6"	2'-0"	1'-0"	.32	39	6'-6"	2'-0"	1'-0"	.32	39	6'-6"	2'-0"	1'-0"	.32	39
	45	6'-0"	2'-0"	1'-0"	.32	39	10'-0"	3'-0"	1'-0"	.32	39	10'-0"	3'-0"	1'-0"	.32	39	9'-6"	4'-0"	1'-6"	.51	51	9'-6"	4'-0"	1'-6"	.51	51	9'-6"	4'-0"	1'-6"	.51	51

NOTE: 1. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.
2. CONCRETE AND STEEL QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 X 12 - W5.8 X W5.8) @ 42 LBS. PER. 100 S.F.

TOP AND BOTTOM VERTICAL BENDS FULL ENCASEMENT		DATE 10/26/86
		CINCINNATI WATER WORKS ENGINEERING DIVISION
APPROVED <i>Paul E. Toman</i>	STANDARD DRAWING 101-4	



3/4" REINFORCING BARS TO BE
PLACED ON THRUST SIDE 6" O.C.



CONCRETE BLOCKING TO BE
PLACED AGAINST UNDISTURBED
EARTH.

NOTE:
THIS STD. DWG. SHALL BE UTILIZED FOR BLOCKING OF TEES, 90° BENDS,
FIRE HYDRANTS, AND PLUGS

SIZE		75 P.S.I. & UNDER				75 P.S.I. TO 125 P.S.I.				125 P.S.I. TO 200 P.S.I.			
		A	B	CU YDS. CONC.	LBS. STEEL	A	B	CU YDS. CONC.	LBS. STEEL	A	B	CU YDS. CONC.	LBS. STEEL
RUN	6"	1'9"	1'6"	0.1	17	2'6"	1'6"	0.1	23	2'6"	2'0"	0.2	30
	8"	1'6"	1'9"	0.1	17	2'0"	1'9"	0.1	23	2'6"	2'0"	0.2	30
	12"	1'6"	2'0"	0.2	18	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	30
	16"	1'6"	2'6"	0.2	23	1'6"	2'6"	0.2	23	2'0"	2'6"	0.2	30
	20"	1'6"	2'9"	0.2	26	1'6"	2'9"	0.2	26	1'9"	2'9"	0.2	33
	8"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
	10"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
	12"	2'0"	2'0"	0.2	24	2'6"	2'0"	0.2	28	3'0"	2'3"	0.2	32
	16"	2'0"	2'0"	0.2	24	2'6"	2'6"	0.3	35	3'0"	2'4"	0.3	32
	20"	2'0"	2'0"	0.2	24	2'6"	2'9"	0.4	35	3'0"	2'9"	0.4	39
	12"	3'0"	3'0"	0.5	54	4'0"	2'6"	0.4	55	4'6"	3'6"	0.7	95
	16"	3'0"	3'0"	0.5	54	4'0"	2'6"	0.4	55	4'6"	3'9"	0.7	98
	20"	3'0"	3'0"	0.5	54	4'0"	2'9"	0.6	60	4'6"	4'0"	1.0	108
	20"	4'0"	3'6"	0.8	84	4'6"	4'0"	1.0	108	6'0"	5'0"	1.5	180
	20"	4'6"	4'6"	1.1	122	5'6"	5'0"	1.4	165	7'0"	6'0"	2.0	252

- NOTE: 1. PRESSURE RANGES AS SHOWN ARE
OPERATING PRESSURES. CONCRETE AND
STEEL QUANTITIES ARE CALCULATED
USING OPERATING PRESSURE PLUS 50 P.S.I.
2. CONCRETE AND STEEL QUANTITIES ARE FOR
ESTIMATING PURPOSES ONLY.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION
TO USE WELDED WIRE FABRIC SHEETS (12 X 12 - W5.8 X W5.8) @ 42 LBS.
PER 100 S.F.

TYPICAL BLOCKING DETAIL CAST IRON TEES

CINCINNATI WATER WORKS ENGINEERING DIVISION		DATE 10/19/96
APPROVED <i>Paul E. Tomlin</i>	STANDARD DRAWING 101-5	

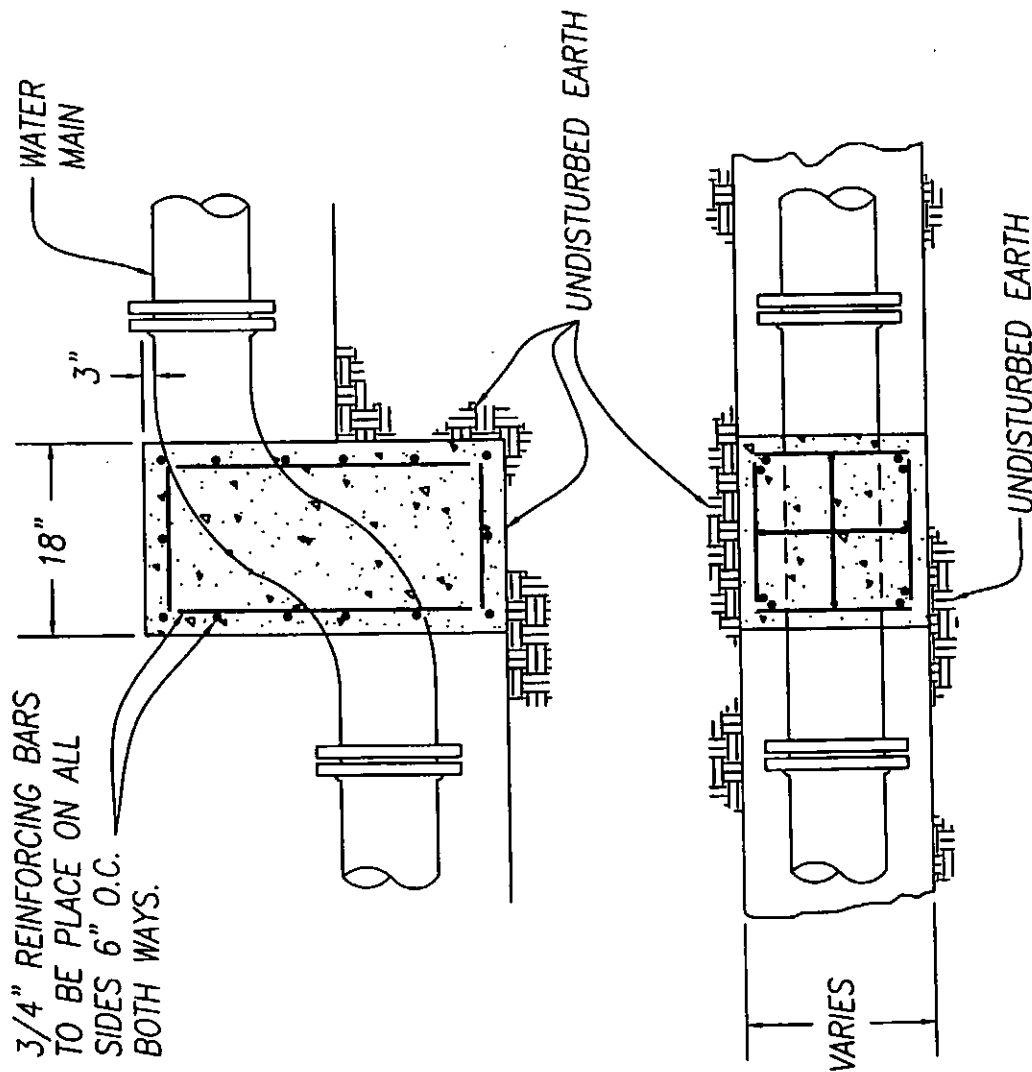
FOR ESTIMATING ONLY

PIPE SIZE	CU. YD. CONC.	LBS. STEEL
4"	.2	69
6"	.2	69
8"	.2	69
10"	.25	83
12"	.3	88

NOTE:
CONCRETE BLOCKING TO BE POURED
AGAINST UNDISTURBED EARTH.

CONCRETE BLOCKING FOR OFFSET BENDS
IN A HORIZONTAL POSITION REFER TO
STANDARD DRAWING 101-1

IN LIEU OF STEEL REINFORCING BARS. THE
CONTRACTOR HAS THE OPTION TO USE
WELDED WIRE FABRIC SHEETS (12 X 12 - W5.8 X W5.8)
@ 42 LBS PER S.F.



TYPICAL BLOCKING DETAIL FOR CAST IRON OFFSET BENDS

DATE
10/19/96

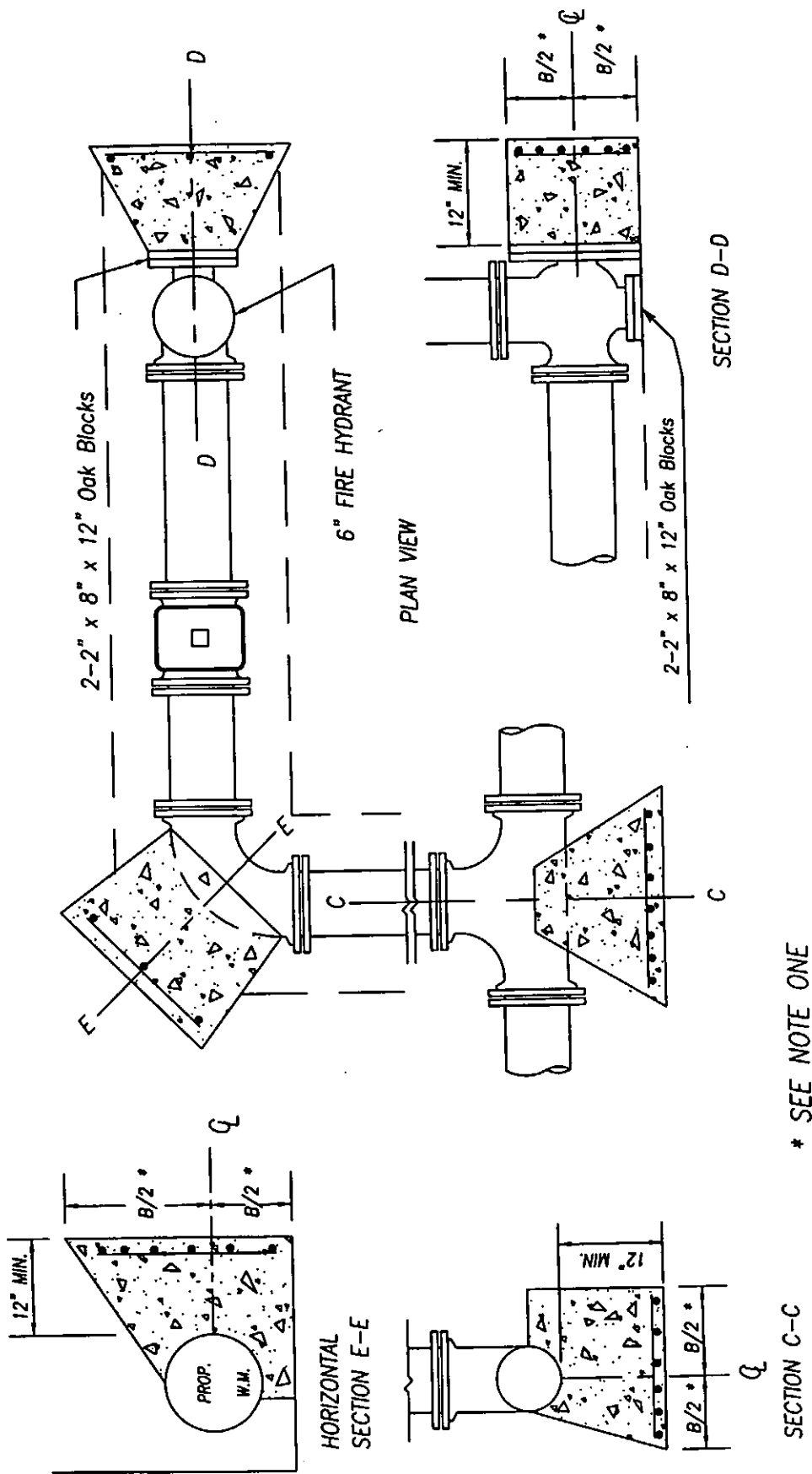
CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED

Paul E. Tamm

STANDARD DRAWING

101-6

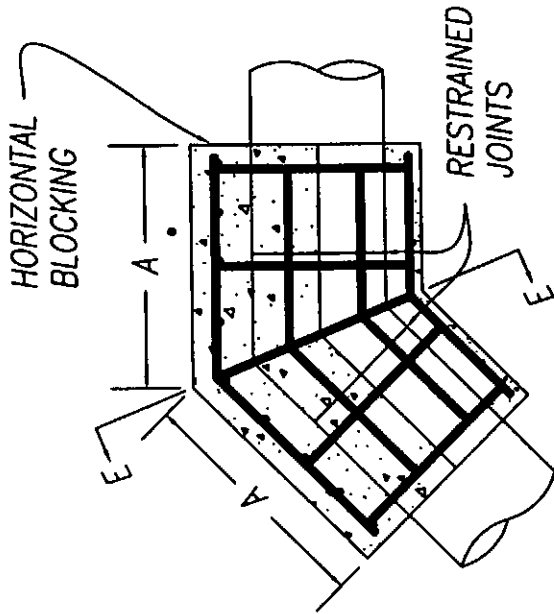


NOTE:

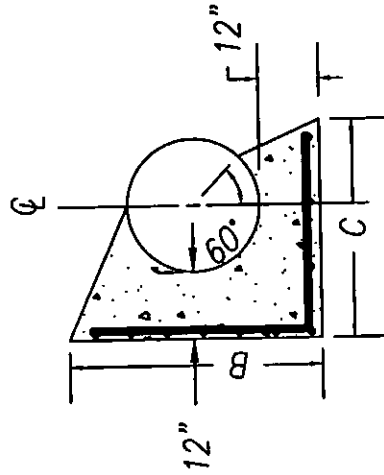
1. REFER TO STANDARD DRAWING NO. 101-5 FOR PLACEMENT OF REINFORCING STEEL AND BLOCKING DETAILS.
2. CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH ON THE THRUST SIDE.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 x 12 - W 5.8 x W 5.8) @ 42 LBS. PER 100 S.F.

TYPICAL CONCRETE BLOCKING FOR FIRE HYDRANT SETTING

CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 10/26/96
APPROVED <i>Paul E. Tom</i>	STANDARD DRAWING 101-7



CONCRETE BLOCKING TO BE PLACED AGAINST UNDISTURBED EARTH.



HORIZONTAL SECTION E-E

3/4" REINFORCING BARS TO BE PLACED 6" O.C. ON THRUST SIDE AND 12" O.C. ON BOTTOM.

SIZE	BEND ANGLE	75 P.S.I. & UNDER						75 P.S.I. TO 125 P.S.I.						125 P.S.I. TO 200 P.S.I.					
		A	B	C	CU. YDS. CONC.	LBS. STEEL		A	B	C	CU. YDS. CONC.	LBS. STEEL		A	B	C	CU. YDS. CONC.	LBS. STEEL	
24"	5-20°	2'-0"	4'-4"	3'-10"	1.1	120		2'-0"	4'-4"	3'-10"	1.1	120		2'-0"	4'-4"	3'-10"	1.1	120	
	21-35°	2'-9"	4'-4"	3'-10"	1.5	230		2'-9"	4'-4"	3'-10"	1.5	230		2'-9"	4'-4"	3'-10"	1.5	230	
	36-45°	3'-2"	4'-4"	3'-10"	1.6	255		3'-2"	4'-4"	3'-10"	1.6	255		3'-2"	4'-4"	3'-10"	1.6	255	
30"	5-20°	2'-3"	4'-11"	4'-5"	1.5	225		2'-3"	4'-11"	4'-5"	1.5	225		2'-3"	4'-11"	4'-5"	1.5	225	
	21-35°	2'-11"	4'-11"	4'-5"	1.8	290		2'-11"	4'-11"	4'-5"	1.8	290		2'-6"	4'-11"	4'-5"	2.4	330	
	36-45°	3'-5"	4'-11"	4'-5"	2.0	340		3'-5"	4'-11"	4'-5"	2.0	340		4'-6"	4'-11"	4'-5"	3.1	420	
36"	5-20°	2'-4"	5'-10"	5'-4"	2.3	280		2'-4"	5'-10"	5'-4"	2.3	280		2'-4"	5'-10"	5'-4"	2.3	280	
	21-35°	3'-0"	5'-10"	5'-4"	3.0	335		3'-0"	5'-10"	5'-4"	3.0	335		3'-11"	5'-10"	5'-4"	3.9	450	
	36-45°	3'-8"	5'-10"	5'-4"	3.2	415		3'-8"	5'-10"	5'-4"	3.2	415		4'-11"	5'-10"	5'-4"	4.9	610	
42"	5-20°	2'-6"	6'-3"	5'-9"	2.6	290		2'-6"	6'-3"	5'-9"	2.6	290		2'-9"	6'-3"	5'-9"	3.2	340	
	21-35°	3'-5"	6'-3"	5'-9"	3.8	380		3'-5"	6'-3"	5'-9"	3.8	380		4'-10"	6'-3"	5'-9"	5.5	565	
	36-45°	4'-0"	6'-3"	5'-9"	4.1	460		4'-3"	6'-3"	5'-9"	4.9	480		6'-1"	6'-3"	5'-9"	6.9	730	
48"	5-20°	2'-9"	6'-10"	6'-4"	3.4	300		2'-9"	6'-10"	6'-4"	3.4	300		3'-4"	6'-10"	6'-4"	4.7	440	
	21-35°	3'-8"	6'-10"	6'-4"	4.6	400		4'-0"	6'-10"	6'-4"	5.6	500		5'-9"	6'-10"	6'-4"	8.0	670	
	36-45°	4'-5"	6'-10"	6'-4"	5.6	495		5'-0"	6'-10"	6'-4"	7.2	625		7'-3"	6'-10"	6'-4"	10.2	895	

- NOTE: 1. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.
 2. CONCRETE AND STEEL QUANTITIES ARE FOR ESTIMATING PURPOSES.
 3. THE "A" DIMENSION IS BASED ON A MINIMUM OF 12" FROM THE END OF THE CONCRETE BLOCK TO THE FACE OF THE BELL RING MEASURED ALONG THE CENTER LINE OF THE PIPE.
 4. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 X 12 - W 5.8 X W 5.8) @ 42 LBS. PER 100 S.F.

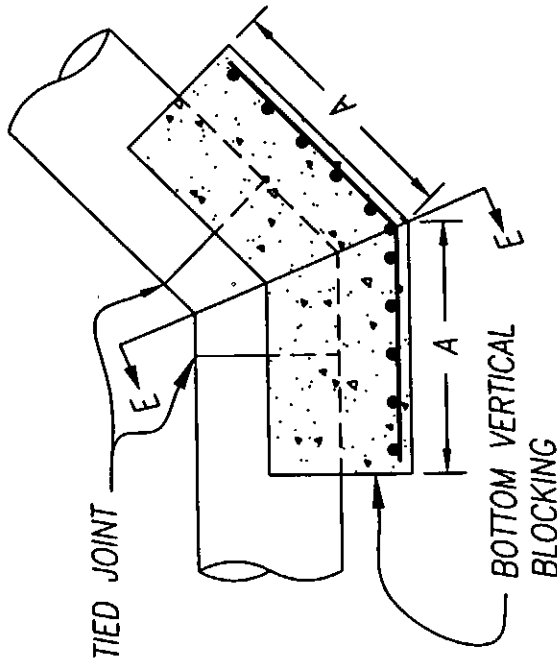
TYPICAL BLOCKING DETAIL CONCRETE PIPE BENDS HORIZONTAL

CINCINNATI WATER WORKS
 ENGINEERING DIVISION

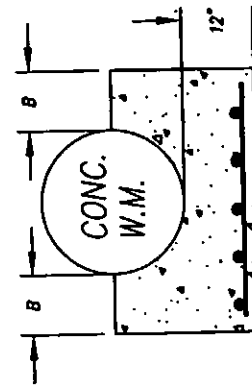
APPROVED
Paul E. Tom
 STANDARD DRAWING
 102-1

DATE
 10/19/96

NOTE:
PRESSURE RANGES AS SHOWN ARE OPERATING
PRESSURES. CONCRETE AND STEEL QUANTITIES ARE
CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.



NOTE:
CONCRETE BLOCKING TO BE POURED AGAINST
UNDISTURBED EARTH ON THE THRUST SIDE.



BOTTOM VERT.
SECTION E - E

3/4" REINFORCING BARS, TO BE PLACED
ON THRUST SIDE 6" O.C.

NOTE:
THE "A" DIMENSION IS BASED ON A MINIMUM OF 12" FROM THE END OF THE
CONCRETE BLOCK TO THE FACE OF THE BELL RING MEASURED ALONG THE CENTER
OF THE PIPE.

IN LIEU OF STEEL REINFORCING BARS,
THE CONTRACTOR HAS THE OPTION TO
USE WELDED WIRE FABRIC SHEETS
(12 X 12 - W 5.8 X W 5.8)
© 42 LBS. PER 100 S.F.

TYPICAL BLOCKING DETAIL CONCRETE PIPE BENDS - BOTTOM VERTICAL

CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED
Paul E. Tamm

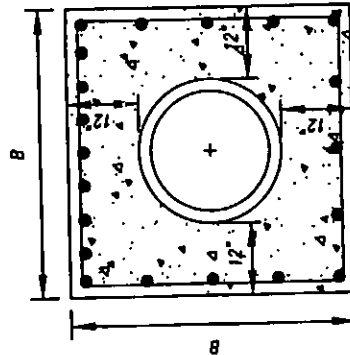
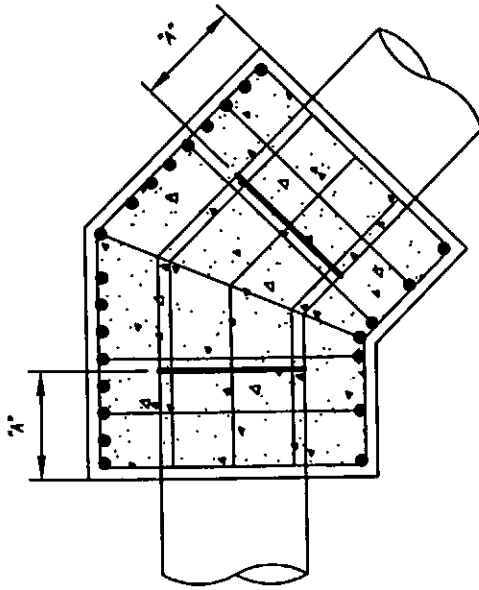
STANDARD DRAWING
102-2

DATE
10/19/96

SIZE	BEND ANGLE	75 P.S.I. & UNDER				75 P.S.I. TO 125 P.S.I.				125 P.S.I. TO 200 P.S.I.			
		A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL	A	B	CU. YDS. CONC.	LBS. STEEL
24	5° to 20°	2'-0"	1'-0"	1.1	120	2'-0"	1'-0"	1.1	120	2'-0"	1'-0"	1.1	120
	21° to 35°	2'-9"	1'-0"	1.4	160	2'-9"	1'-0"	1.4	160	2'-9"	1'-0"	1.4	160
	36° to 45°	3'-2"	1'-0"	1.5	180	3'-2"	1'-0"	1.5	180	3'-2"	1'-0"	1.5	180
30	5° to 20°	2'-3"	1'-0"	1.3	150	2'-3"	1'-0"	1.3	150	2'-3"	1'-0"	1.3	150
	21° to 35°	2'-11"	1'-0"	1.6	190	2'-11"	1'-0"	1.6	190	3'-6"	1'-0"	2.2	225
	36° to 45°	3'-5"	1'-0"	1.8	225	3'-5"	1'-0"	1.8	225	4'-6"	1'-0"	2.8	280
36	5° to 20°	2'-4"	1'-0"	2.0	190	2'-4"	1'-0"	2.0	190	2'-4"	1'-0"	2.0	190
	21° to 35°	3'-0"	1'-0"	2.5	230	3'-0"	1'-0"	2.5	230	3'-11"	1'-0"	3.3	300
	36° to 45°	3'-8"	1'-0"	2.7	275	3'-8"	1'-0"	2.7	275	4'-11"	1'-0"	4.2	375
42	5° to 20°	2'-6"	1'-0"	2.0	190	2'-6"	1'-0"	2.0	190	2'-9"	1'-0"	2.5	230
	21° to 35°	3'-5"	1'-0"	3.1	260	3'-5"	1'-0"	3.1	260	4'-10"	1'-0"	4.4	390
	36° to 45°	4'-0"	1'-0"	3.3	300	4'-3"	1'-0"	3.9	350	6'-1"	1'-0"	5.6	490
48	5° to 20°	2'-9"	1'-0"	2.7	210	2'-9"	1'-0"	2.7	210	3'-4"	1'-0"	3.8	295
	21° to 35°	3'-8"	1'-0"	3.8	275	4'-0"	1'-0"	4.6	345	5'-9"	1'-0"	6.5	455
	36° to 45°	4'-5"	1'-0"	4.5	335	5'-0"	1'-0"	5.8	430	7'-3"	1'-0"	8.2	600

NOTE:

"A" DISTANCE IS THE DIMENSION FROM THE END OF THE CONCRETE BLOCK TO THE FACE OF THE BELL RING.



Cross-section

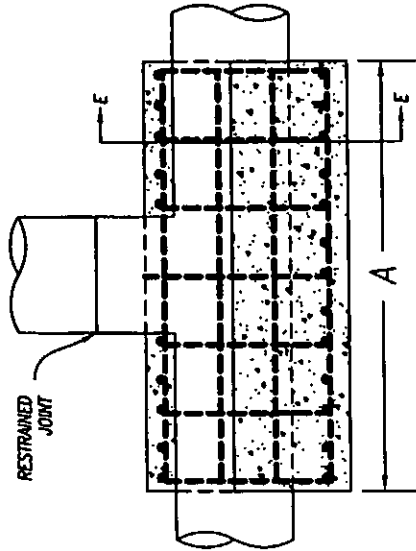
3/4" REINFORCING BARS, TO BE PLACED 6" O.C. ON THRUST SIDE AND 12" O.C. ON REMAINING SIDES.

SIZE	75 P.S.I. & UNDER				75 P.S.I. TO 125 P.S.I.				125 P.S.I. TO 200 P.S.I.			
	A	B	CONC. C.Y./Lin. Ft.	STEEL LBS./Lin. Ft.	A	B	CONC. C.Y./Lin. Ft.	STEEL LBS./Lin. Ft.	A	B	CONC. C.Y./Lin. Ft.	STEEL LBS./Lin. Ft.
24	1'-6"	4'-4"	0.53	65	1'-6"	4'-4"	0.53	65	1'-6"	4'-4"	0.53	65
30	1'-6"	4'-11"	0.65	75	1'-6"	4'-11"	0.65	75	1'-6"	4'-11"	0.65	75
36	1'-6"	5'-10"	0.85	85	1'-6"	5'-10"	0.85	85	1'-6"	5'-10"	0.85	85
42	1'-6"	6'-3"	0.95	95	1'-6"	6'-3"	0.95	95	1'-6"	6'-3"	0.95	95
48	1'-6"	6'-10"	1.14	105	1'-6"	6'-10"	1.14	105	1'-6"	6'-10"	1.14	105

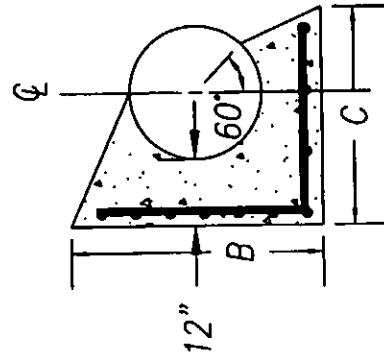
1. THE CONCRETE BLOCKING, FOR A GIVEN PIPE SIZE, HAS THE SAME DIMENSIONS FOR ANY BEND DEFLECTION TO 45° IN EACH OF THE PRESSURE RANGES.
2. IN CASES WHERE THE DISTANCE BETWEEN TOP AND BOTTOM BENDS IS SUCH THAT THE CONCRETE BLOCKING DIMENSIONS SHOWN ON THIS DRAWING AND DRAWING 102-2 OVERLAP ON THE RUN BETWEEN THE TWO BENDS, BOTH BENDS AND THE PIPE BETWEEN THEM SHALL BE FULLY ENCASED WITH CONCRETE TO THE CROSS SECTION SHOWN ON THIS DRAWING.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12X12-W5.8XW5.8) @ 42 LBS. PER 100 S.F.
4. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.

NOTE:
CONCRETE BLOCKING SHALL NOT BE PLACED ON TOP VERTICAL BENDS UNLESS SPECIFICALLY DESIGNED FOR ON THE CONTRACT PLANS.

TYPICAL BLOCKING DETAIL	
CONCRETE PIPE BENDS - TOP VERTICAL	
CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 10/20/96
APPROVED <i>Paul E. Tom</i>	STANDARD DRAWING 102-3



CONCRETE BLOCKING TO BE PLACED
AGAINST UNDISTURBED EARTH



SECTION E-E

3/4" REINFORCING BARS TO BE PLACED
6" O.C. ON THRUST SIDE AND 12" O.C.
ON BOTTOM.

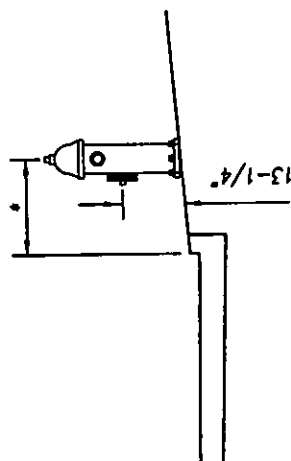
SIZE		75 P.S.I. & UNDER					75 to 125 P.S.I.					125 to 200 P.S.I.				
RUN	BRANCH	A	B	C	CU. YDS. CONCRETE	LBS. STEEL	A	B	C	CU. YDS. CONCRETE	LBS. STEEL	A	B	C	CU. YDS. CONCRETE	LBS. STEEL
24"	24"	75"	44"	3'10"	2.1	300	75"	44"	3'10"	2.1	300	87"	44"	3'10"	2.4	480
30"	24"	75"	4'11"	4'5"	2.6	375	75"	4'11"	4'5"	2.6	375	77"	4'11"	4'5"	2.6	375
30"	30"	75"	4'11"	4'5"	2.6	375	83"	4'11"	4'5"	2.8	400	11'9"	4'11"	4'5"	4.0	580
36"	24"	75"	5'10"	5'4"	3.7	420	75"	5'10"	5'4"	3.7	420	75"	5'10"	5'4"	3.7	420
36"	30"	75"	5'10"	5'4"	3.7	420	75"	5'10"	5'4"	3.7	420	9'11"	5'10"	5'4"	4.9	540
36"	36"	8'5"	5'10"	5'4"	4.2	430	9'0"	5'10"	5'4"	4.5	460	12'11"	5'10"	5'4"	6.4	700
42"	24"	76"	6'3"	5'9"	4.1	445	76"	6'3"	5'9"	4.1	445	76"	6'3"	5'9"	4.1	445
42"	30"	76"	6'3"	5'9"	4.1	445	76"	6'3"	5'9"	4.1	445	9'3"	6'3"	5'9"	5.3	550
42"	36"	8'6"	6'3"	5'9"	4.9	500	8'6"	6'3"	5'9"	4.9	500	12'0"	6'3"	5'9"	6.9	710
42"	42"	8'6"	6'3"	5'9"	4.9	500	11'2"	6'3"	5'9"	6.4	640	15'10"	6'3"	5'9"	9.1	930
48"	24"	76"	6'10"	6'4"	5.3	490	76"	6'10"	6'4"	5.3	490	76"	6'10"	6'4"	5.3	490
48"	30"	76"	6'10"	6'4"	5.3	490	76"	6'10"	6'4"	5.3	490	8'6"	6'10"	6'4"	6.0	560
48"	36"	8'6"	6'10"	6'4"	6.0	560	8'6"	6'10"	6'4"	6.0	560	11'0"	6'10"	6'4"	7.8	710
48"	42"	8'6"	6'10"	6'4"	6.0	560	10'3"	6'10"	6'4"	7.2	660	14'7"	6'10"	6'4"	10.3	940
48"	48"	9'6"	6'10"	6'4"	6.7	610	13'3"	6'10"	6'4"	9.3	850	18'11"	6'10"	6'4"	13.3	1100

NOTE: 1. PRESSURE RANGES AS SHOWN ARE OPERATING PRESSURES. CONCRETE AND STEEL QUANTITIES ARE CALCULATED USING OPERATING PRESSURE PLUS 50 P.S.I.
2. CONCRETE AND STEEL QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.
3. IN LIEU OF STEEL REINFORCING BARS, THE CONTRACTOR HAS THE OPTION TO USE WELDED WIRE FABRIC SHEETS (12 X 12 - W5.8 X W5.8) @ 42 LBS. PER 100 S.F.

TYPICAL BLOCKING DETAIL CONCRETE PIPE TEES

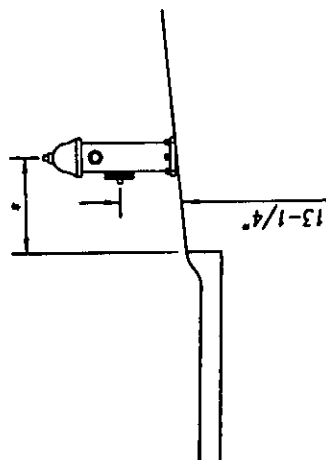
CINCINNATI WATER WORKS ENGINEERING DIVISION		DATE 10/26/96
APPROVED <i>Paul E. Tamm</i>	STANDARD DRAWING 102-4	

BATTERED OR STRAIGHT CURB



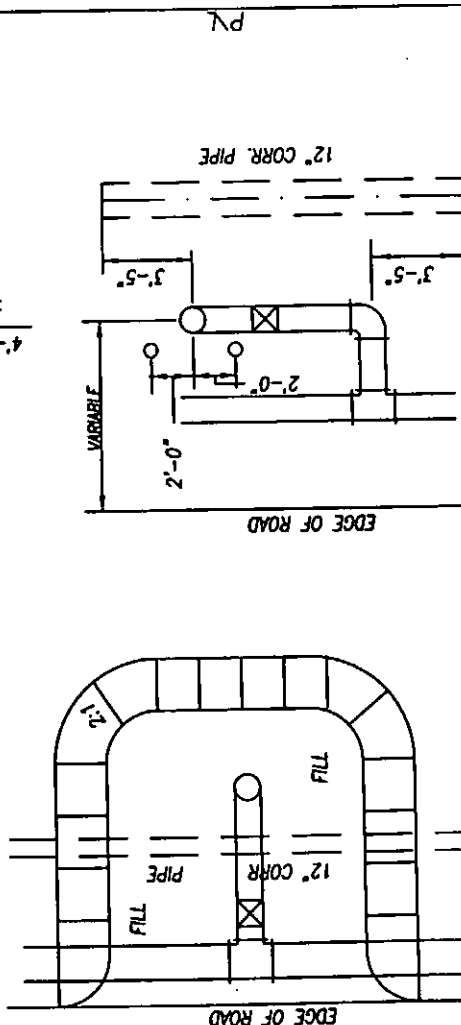
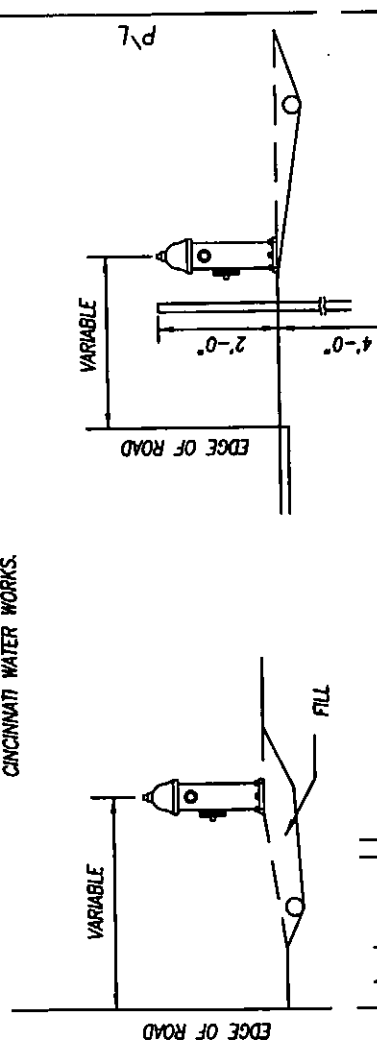
* AS INDICATED ON PLANS

ROLLED CURB



SETTING ON ROADWAYS WITHOUT CURBS

4" I.D. CAST IRON PIPE, 6' LONG, TO BE FILLED WITH CONCRETE WITH EXPOSED PART TO BE MARKED WITH BLACK AND WHITE PAINTED STRIPES. GUARD POSTS TO BE INSTALLED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE CINCINNATI WATER WORKS.

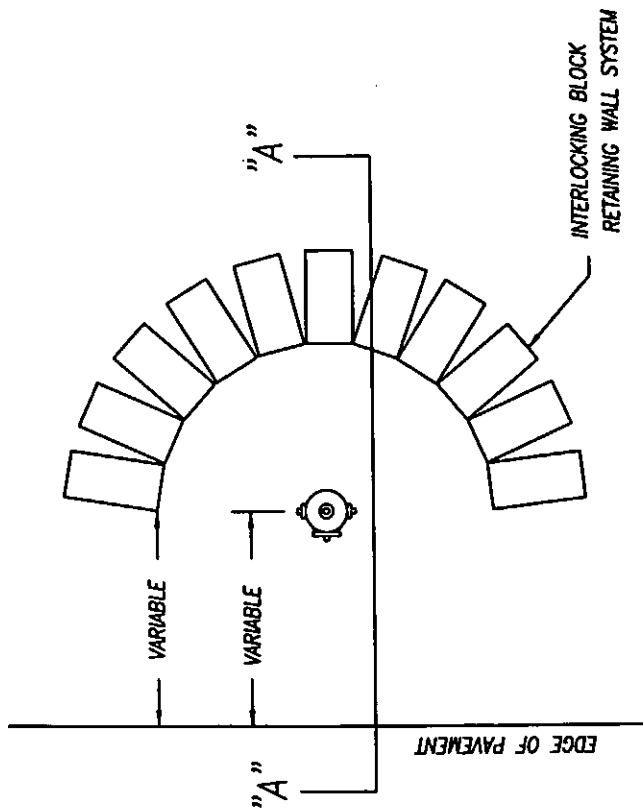


DRAIN PIPE WILL BE INSTALLED AT ALL TIMES WHEN HYDRANT LEAD IS WITHIN EXISTING OR PROPOSED DRAINAGE DITCH.

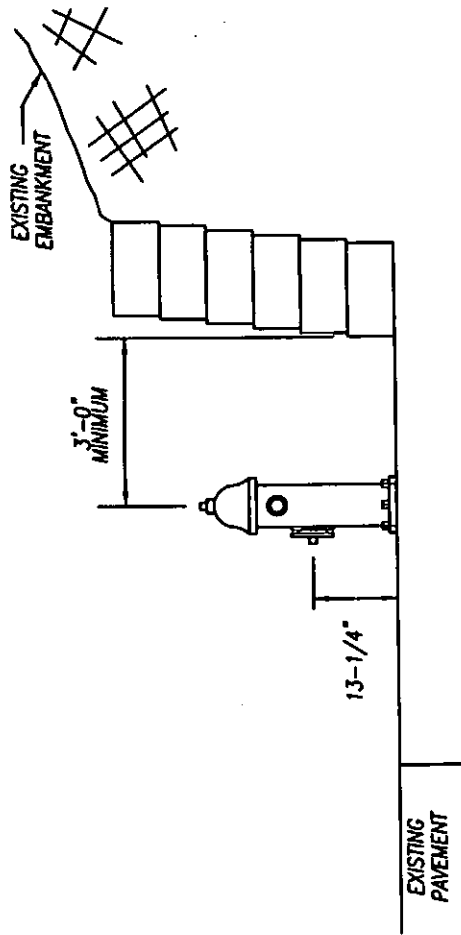
- NOTE:
1. NO PART OF ANY FIRE HYDRANT SETTING SHALL BE CLOSER THAN 5'-0" TO ANY DRIVEWAY, SEWER INLET, UTILITY POLE, ANCHOR WIRE, OR SIDEWALK ENTRANCE.
 2. THERE SHALL BE NO ADDITIONAL COMPENSATION FOR GUARD POST, DRAIN PIPE, OR GRADING WORK.

FIRE HYDRANT SETTING MEASUREMENTS

CINCINNATI WATER WORKS ENGINEERING DIVISION		DATE 10/26/96
APPROVED <i>Paul E. Thomas</i>	STANDARD DRAWING 103-1	



PLAN VIEW



SECTION A-A

NOTE:

1. RETAINING WALL TO BE PROVIDED WHEN FIRE HYDRANT SETTING REQUIRES EXCAVATION INTO EXISTING EMBANKMENT
2. NO PART OF ANY FIRE HYDRANT SETTING SHALL BE CLOSER THAN 5'-0" TO ANY DRIVEWAY, SEWER INLET, UTILITY POLE, OR ANCHOR WIRE
3. KEYSTONE RETAINING WALL SYSTEM - STD. UNIT OR CINCINNATI WATER WORKS APPROVED EQUAL

RETAINING WALL FOR
FIRE HYDRANT SETTING

CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE
10/26/96

APPROVED

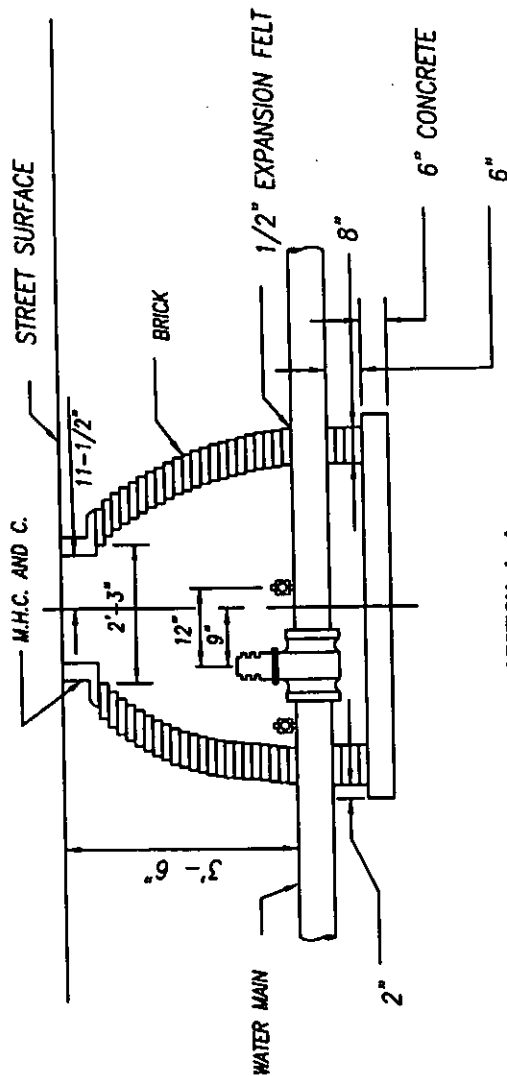
103-1A

Paul E. Turner

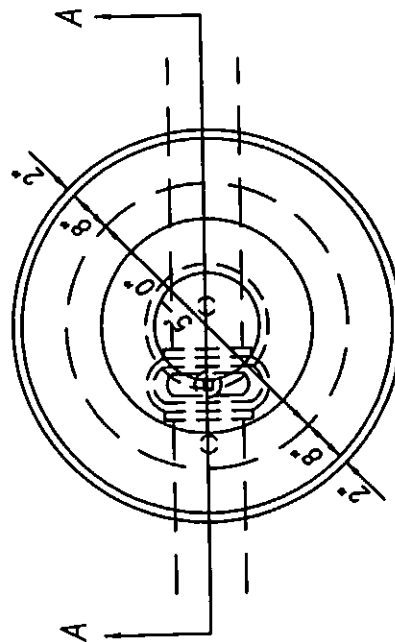
STANDARD DRAWING

NOTE:

1. WHERE WATER PRESSURE IS OVER 100 P.S.I., REFER TO STANDARD DRAWING 104-6 & 104-6A FOR CONSTRUCTION OF 12" VALVE CHAMBER.
2. OHSHA APPROVED STEPS @ 15" O.C. SHALL BE INSTALLED IN ALL CHAMBERS/VAULTS WHERE THE DEPTH OF COVER ON THE WATER MAIN IS GREATER THAN 6.0'.
3. 1/2" EXPANSION FELT AROUND MAIN THE FULL THICKNESS OF CHAMBER WALL.
4. 1" FERRULES FURNISHED AND INSTALLED BY CONTRACTOR.



SECTION A-A



PLAN

**VALVE CHAMBER
4" TO 12"**

DATE
10/26/95

CINCINNATI WATER WORKS
ENGINEERING DIVISION

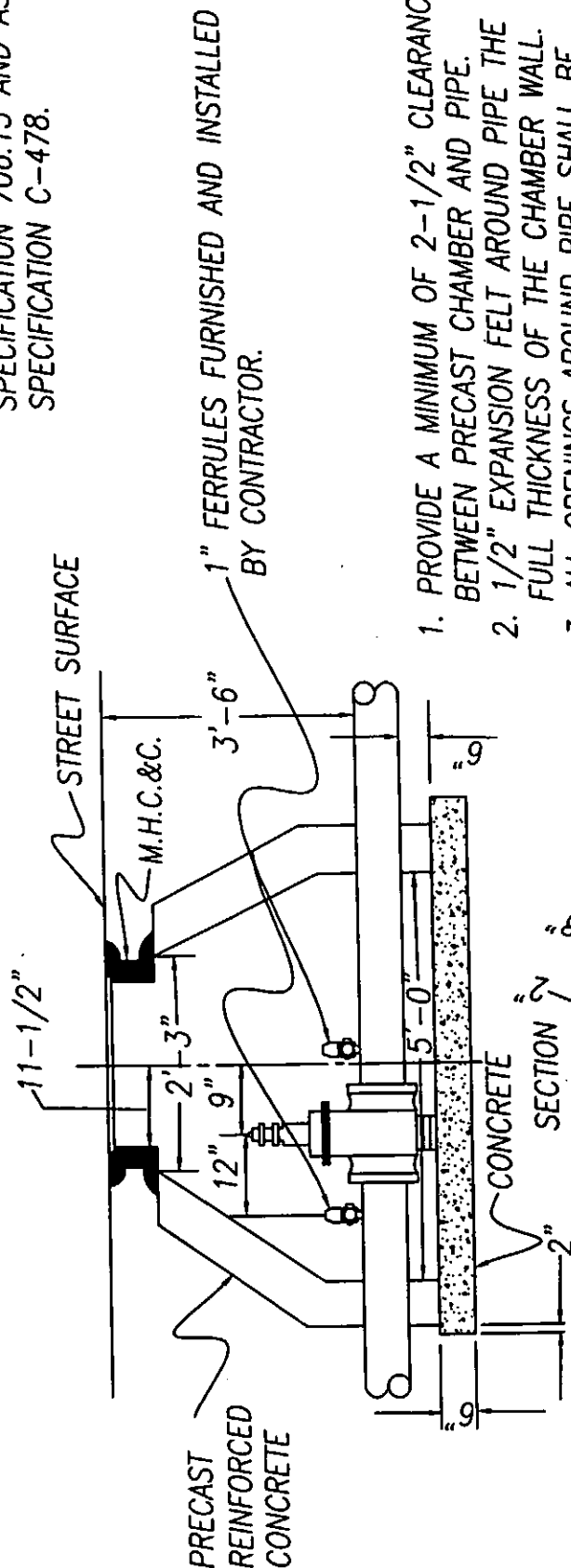
APPROVED

Paul E. Tomlin

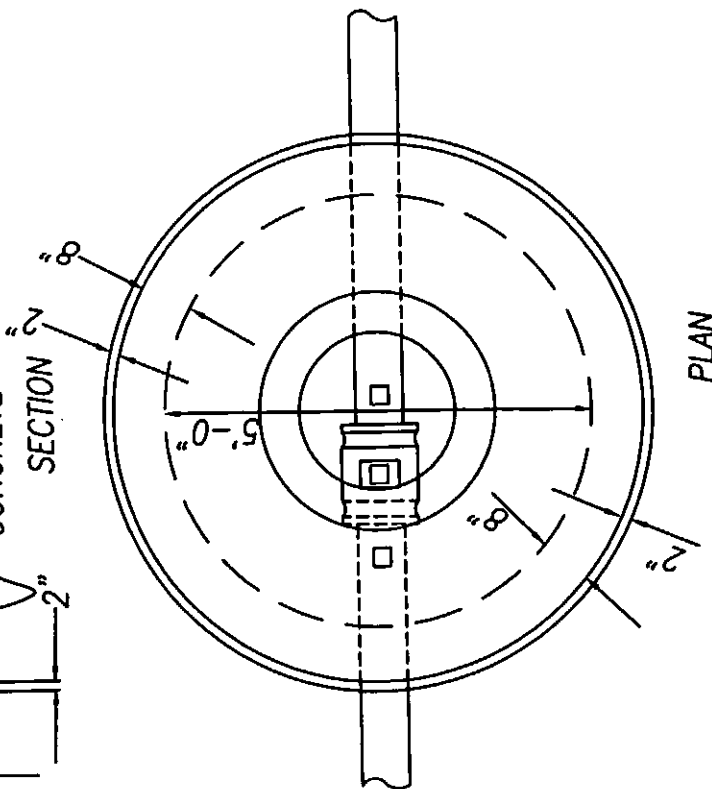
STANDARD DRAWING

104-1

NOTE: PRECAST REINFORCED CONCRETE CHAMBER SHALL MEET ODOT SPECIFICATION 706.13 AND ASTM SPECIFICATION C-478.



1. PROVIDE A MINIMUM OF 2-1/2" CLEARANCE BETWEEN PRECAST CHAMBER AND PIPE.
2. 1/2" EXPANSION FELT AROUND PIPE THE FULL THICKNESS OF THE CHAMBER WALL.
3. ALL OPENINGS AROUND PIPE SHALL BE THOROUGHLY GROUTED WITH CEMENT MORTAR.



VALVE CHAMBER 4" TO 12"
(PRE-CAST)

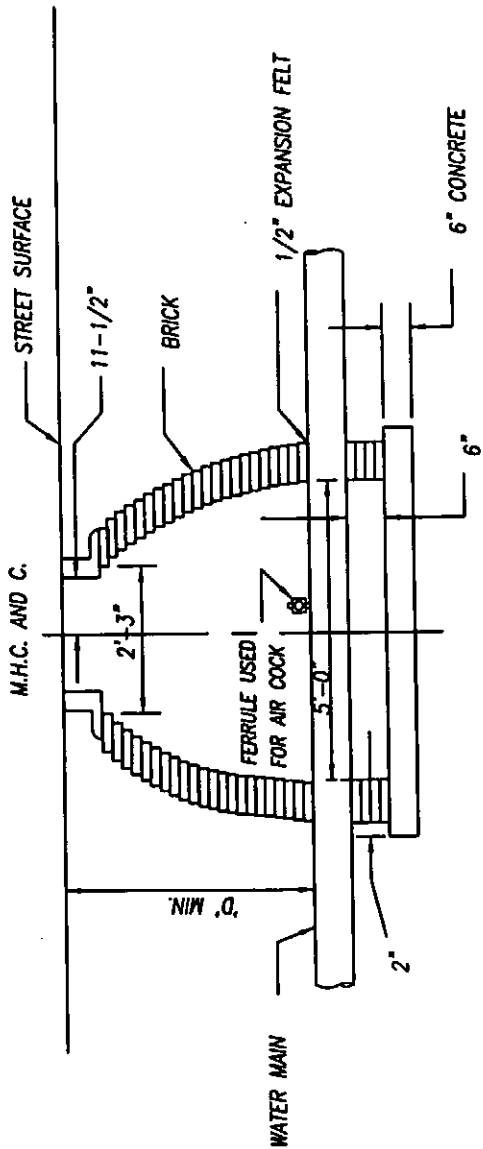
DATE
10/26/96

CINCINNATI WATER WORKS
ENGINEERING DIVISION

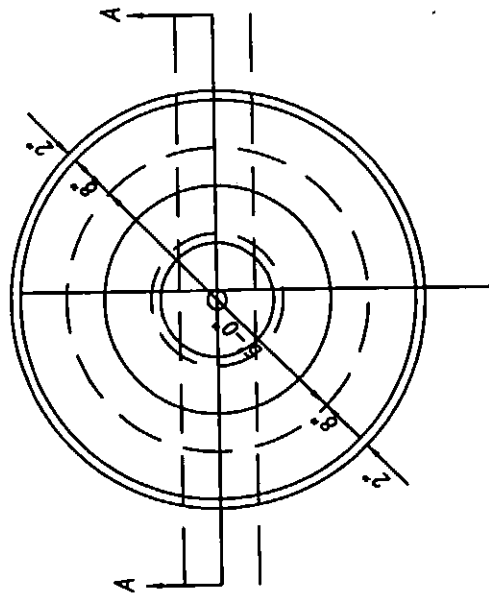
STANDARD DRAWING

APPROVED
Paul E. Tom

104-1A



SECTION A-A



PLAN

WATER MAIN SIZE	SIZE OF FERRULE	'D' MIN
12" W.M. & UNDER	1"	3'-6"
LARGER THAN 12"	1-1/2" OR 2"	4'-0"

AIR COCK CHAMBER

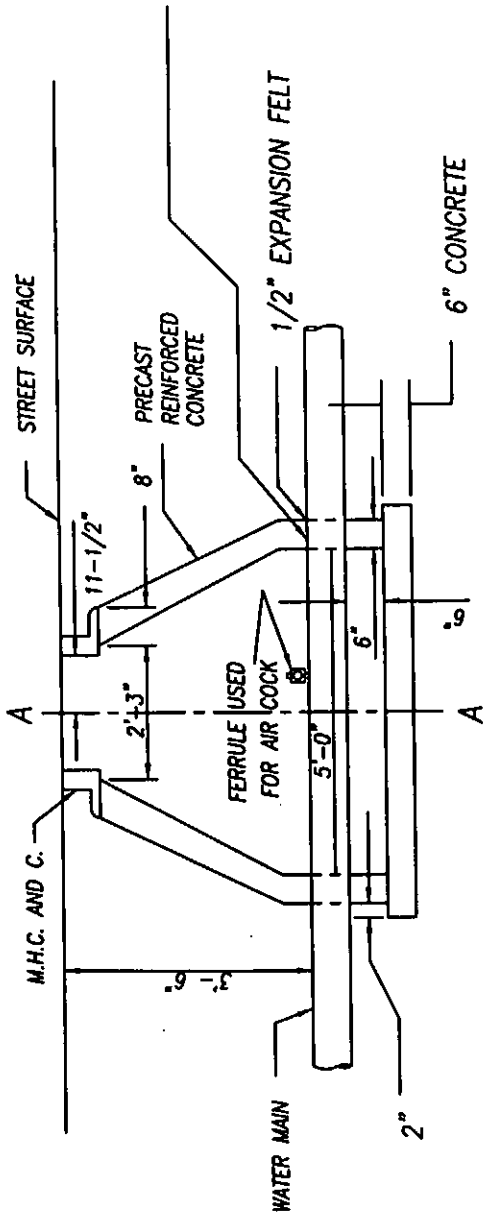
DATE
10/26/96

CINCINNATI WATER WORKS
ENGINEERING DIVISION

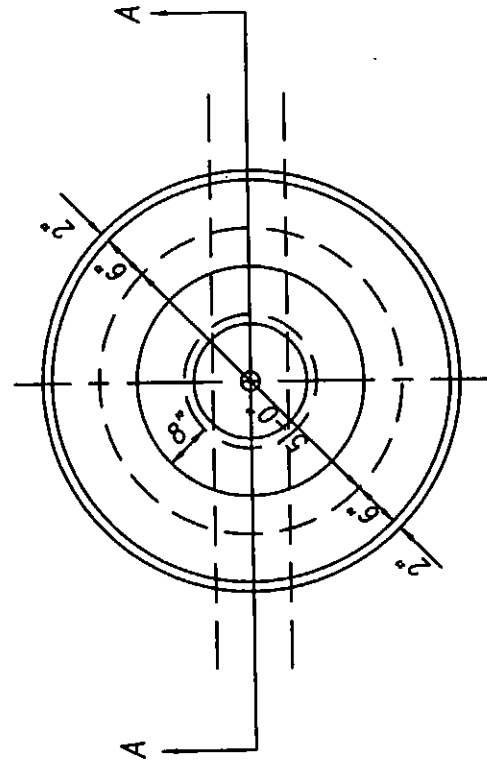
APPROVED
STANDARD DRAWING

Paul E. Torrey

104-2



SECTION



PLAN

1. PROVIDE A MINIMUM OF 2-1/2" CLEARANCE BETWEEN PRECAST CHAMBER AND PIPE.
2. 1/2" EXPANSION FELT AROUND PIPE THE FULL THICKNESS OF THE CHAMBER WALL.
3. ALL OPENINGS AROUND PIPE SHALL BE THOROUGHLY GROUTED WITH CEMENT MORTAR.

NOTE : PRECAST REINFORCED CONCRETE CHAMBER SHALL MEET ODOT SPECIFICATION 706.13 AND ASTM SPECIFICATION C-478.

WATER MAIN SIZE	SIZE OF FERRULE
12" W.M. & UNDER	1"
LARGER THAN 12"	1-1/2" OR 2"

AIR COCK CHAMBER (PRE-CAST)

DATE
10/26/88

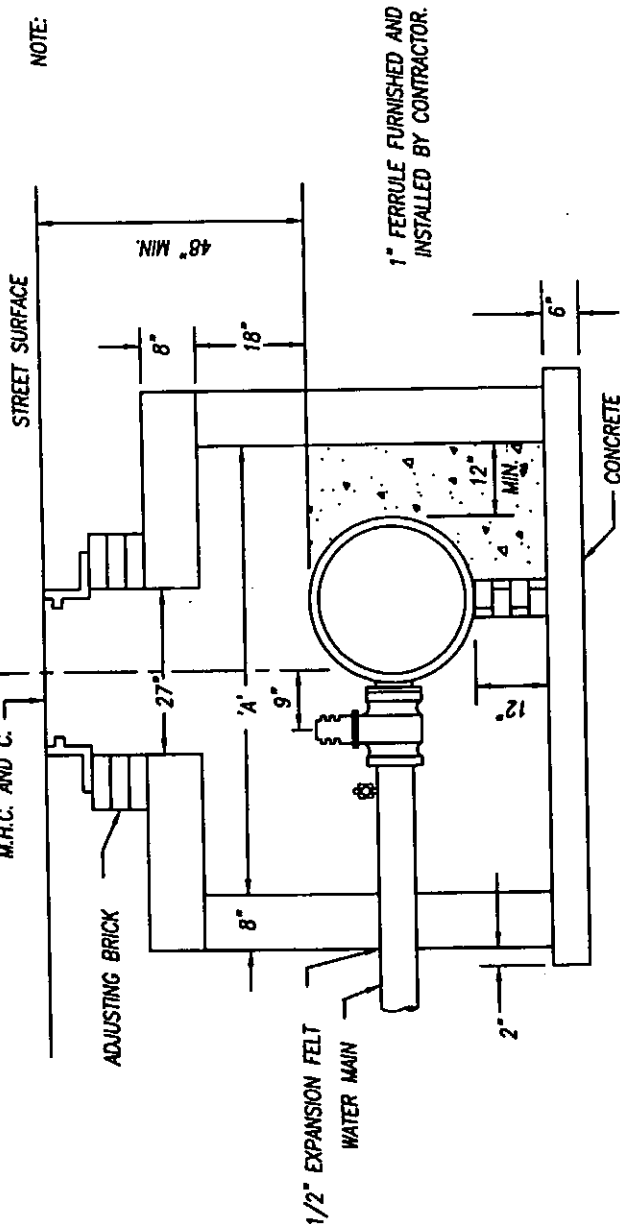
CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED
STANDARD DRAWING

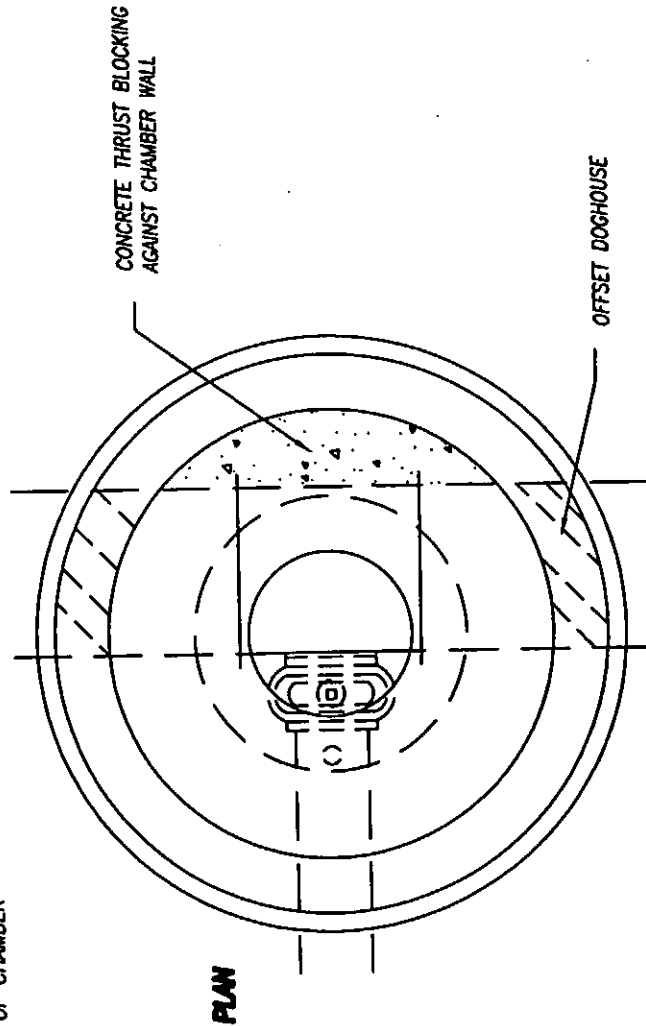
Paul E. Toman
104-2A

1. PRECAST REINFORCED CONCRETE CHAMBER SHALL MEET ODOT SPECIFICATION 706.13 AND ASTM SPECIFICATION C-478.
2. AT LEAST 1/2" THICK EXPANSION FELT AROUND ALL PIPES THRU CHAMBER WALL FOR THE FULL THICKNESS OF THE WALL

NOTE:



1/2" EXPANSION FELT AROUND MAIN, THE FULL THICKNESS OF CHAMBER WALL



SIZE OF CONNECTION	'A'
6"x 4" TO 6"x 6"	5'-0"
8"x 4" TO 8"x 8"	5'-0"
10"x 4" TO 10"x 10"	5'-0"
12"x 4" TO 12"x 12"	6'-0"
16"x 4" TO 16" TO 12"	6'-0"

6" - 18" FLANGED OUTLET & TAPPING VALVE CHAMBER

CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE
10/30/96

APPROVED
Paul E. Tamm

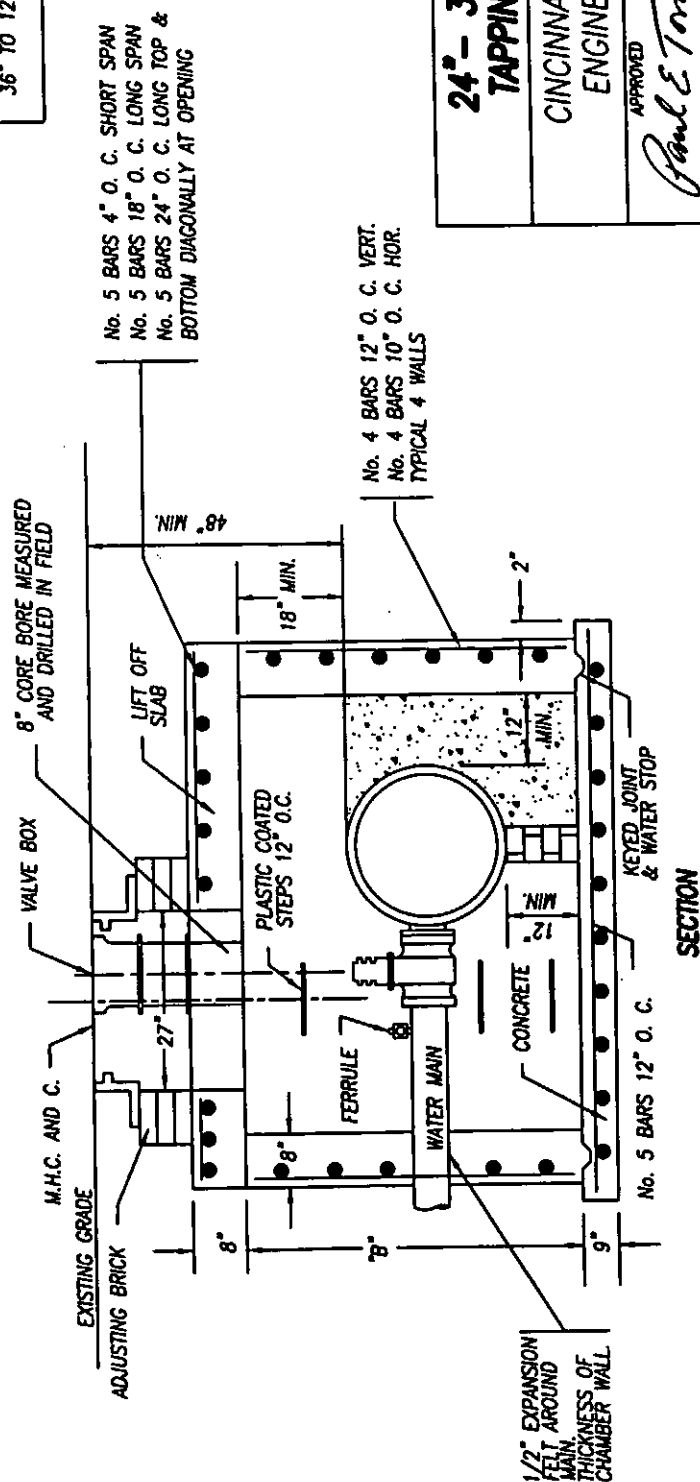
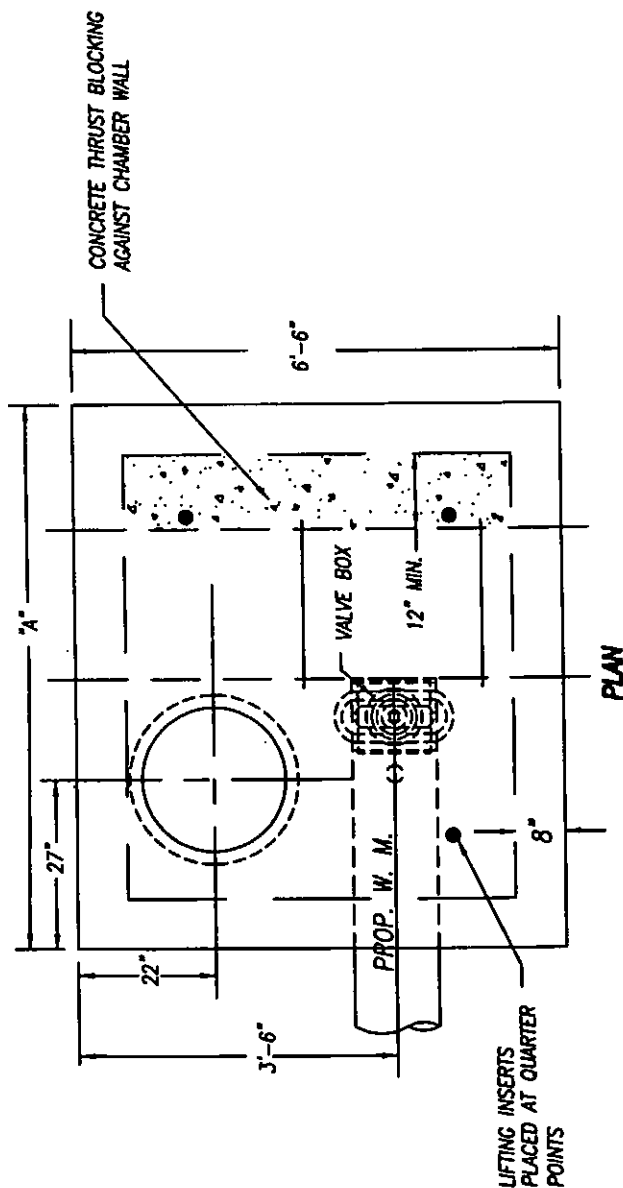
STANDARD DRAWING

104-3

1. PRECAST REINFORCED CONCRETE CHAMBER SHALL MEET ODOT SPECIFICATION 706.13 AND ASTM SPECIFICATION C-478.
2. AT LEAST 1/2" THICK EXPANSION FELT AROUND ALL PIPES THRU CHAMBER WALL FOR THE FULL THICKNESS OF THE WALL

1" FERRULE FURNISHED AND
INSTALLED BY CONTRACTOR.

SIZE OF CONNECTION	"A"	"B"
24" x 8" TO 24" x 12"	7'-3"	5'-0"
30" x 12"	7'-9"	5'-6"
36" TO 12"	8'-3"	6'-2"



**24" - 36" FLANGED OUTLET &
TAPPING VALVE CHAMBER**

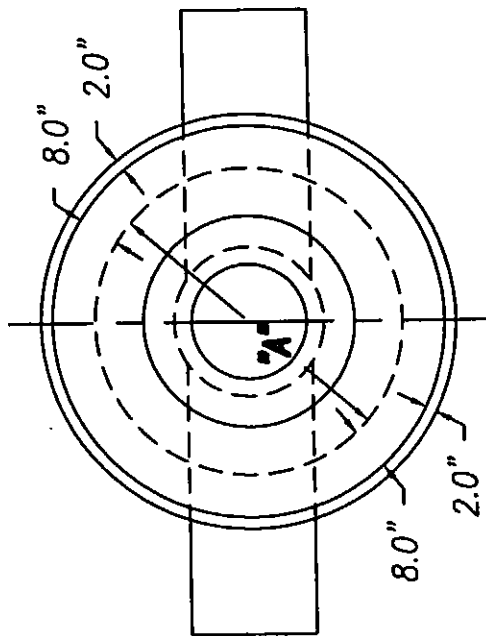
CINCINNATI WATER WORKS
ENGINEERING DIVISION

DATE 06/15/06

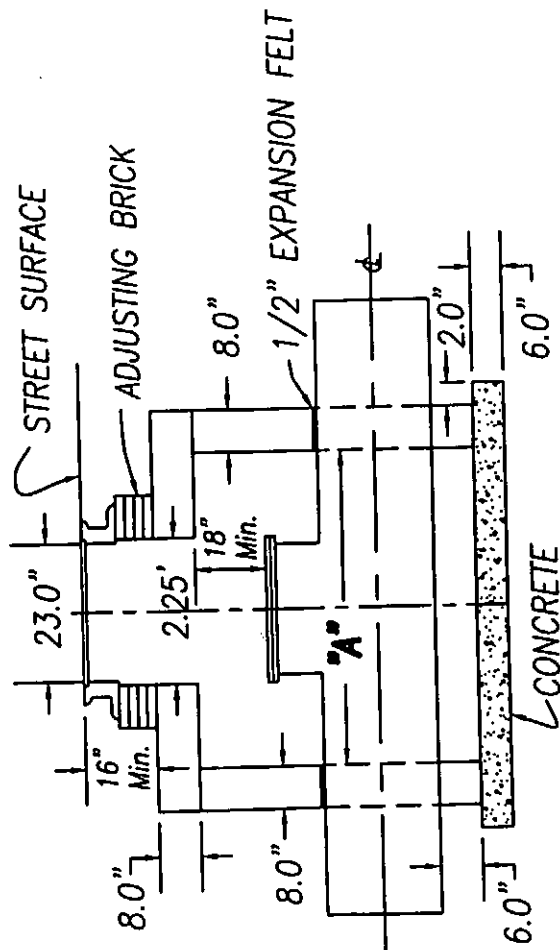
APPROVED
Paul E. Torner

STANDARD DRAWING

104-3A



PLAN



SECTION

NOTE: PRECAST REINFORCED CONCRETE
CHAMBER SHALL MEET ODOT
SPECIFICATION 706.13 AND
ASTM SPECIFICATION C-478

SIZE	A
24"	5.0'
30"	6.0'
36"	6.0'
42"	7.0'
48"	7.0'

STANDARD MANHEAD CHAMBER

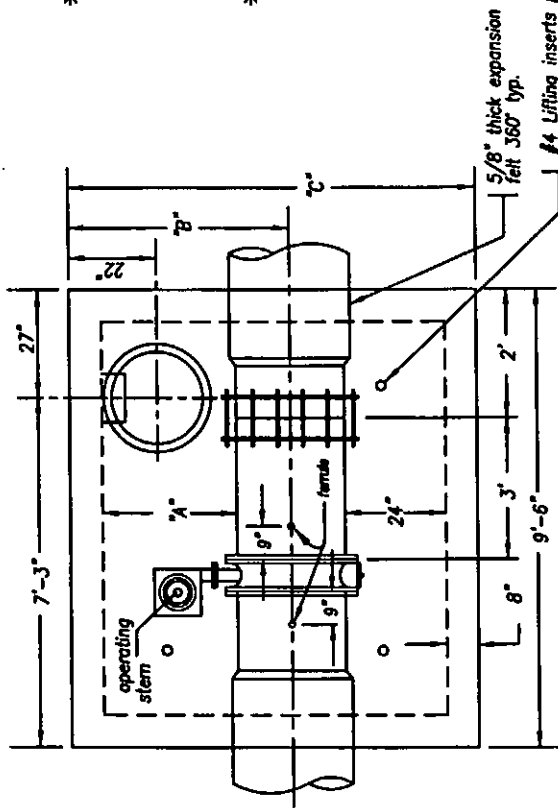
DATE
11-16-96

CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED
STANDARD DRAWING

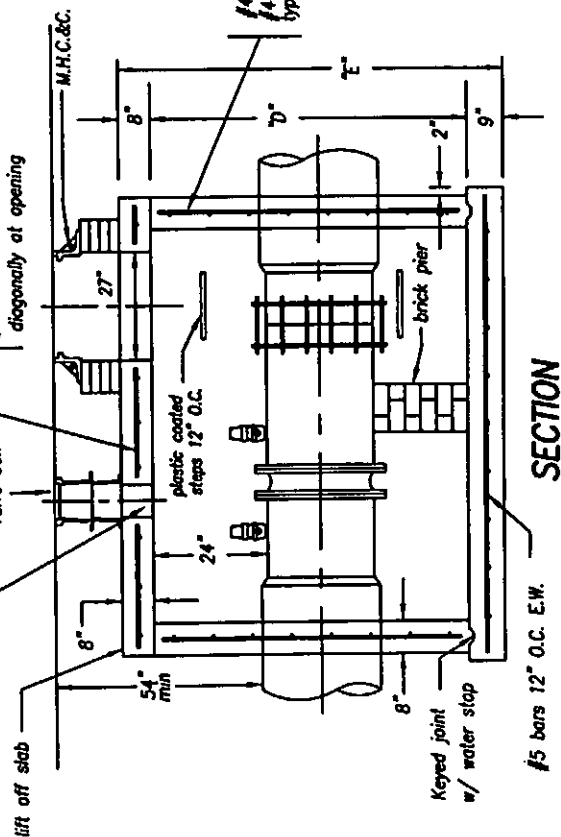
Paul E. Tamm

104-4



PLAN

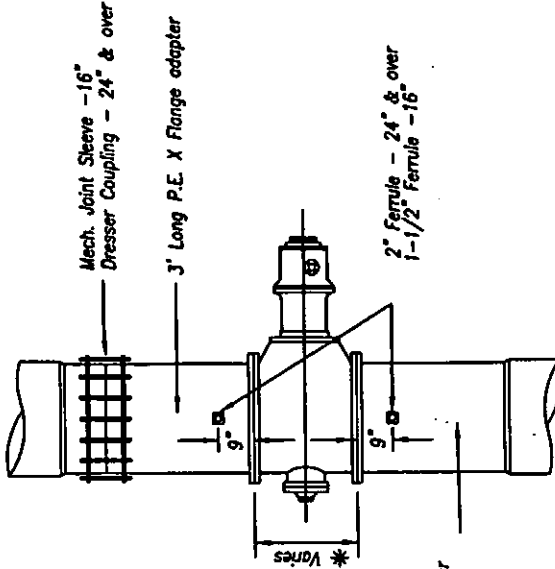
8" Core bore measured and drilled in field
 #5 bars 4" O.C. short span
 #5 bars 18" O.C. long span
 #5 bars 24" O.C. long top & bot diagonally at opening



SECTION

DIAMETER	"A"	"B"	"C"	"D"	"E"
16 inch	30"	3'-11"	7'-4"	5'-6"	6'-11"
24 inch	30"	4'-3"	8'-0"	6'-2"	7'-7"
30 inch	30"	4'-6"	8'-6"	6'-8"	8'-1"
36 inch	36"	5'-3"	9'-6"	7'-2"	8'-7"
42 inch	36"	5'-6"	10'-0"	7'-8"	9'-1"

** For 16" Precast Butterfly Chamber see STANDARD DRAWING 104-5B



* Laying Length of Valve Depends Upon Manufacturer and Size

BUTTERFLY VALVE CHAMBER POURED IN PLACE

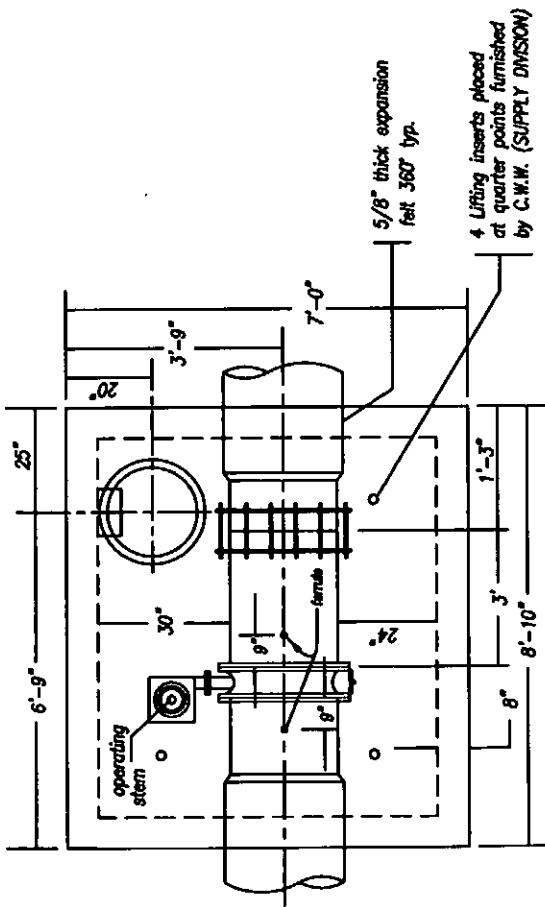
CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED
Paul E. Tom

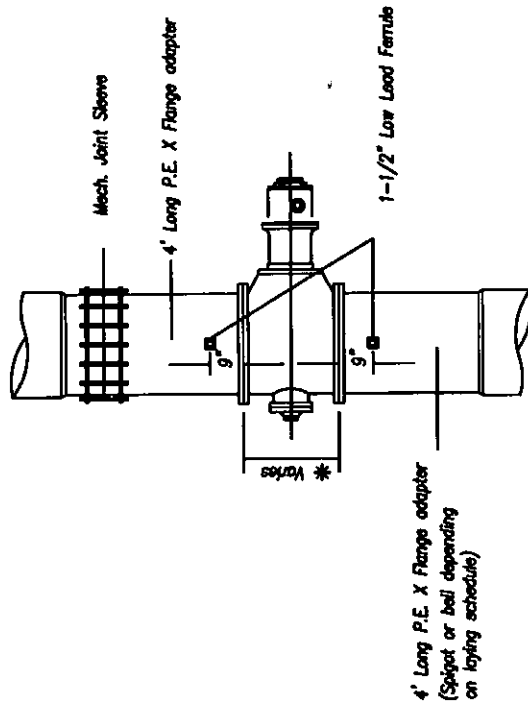
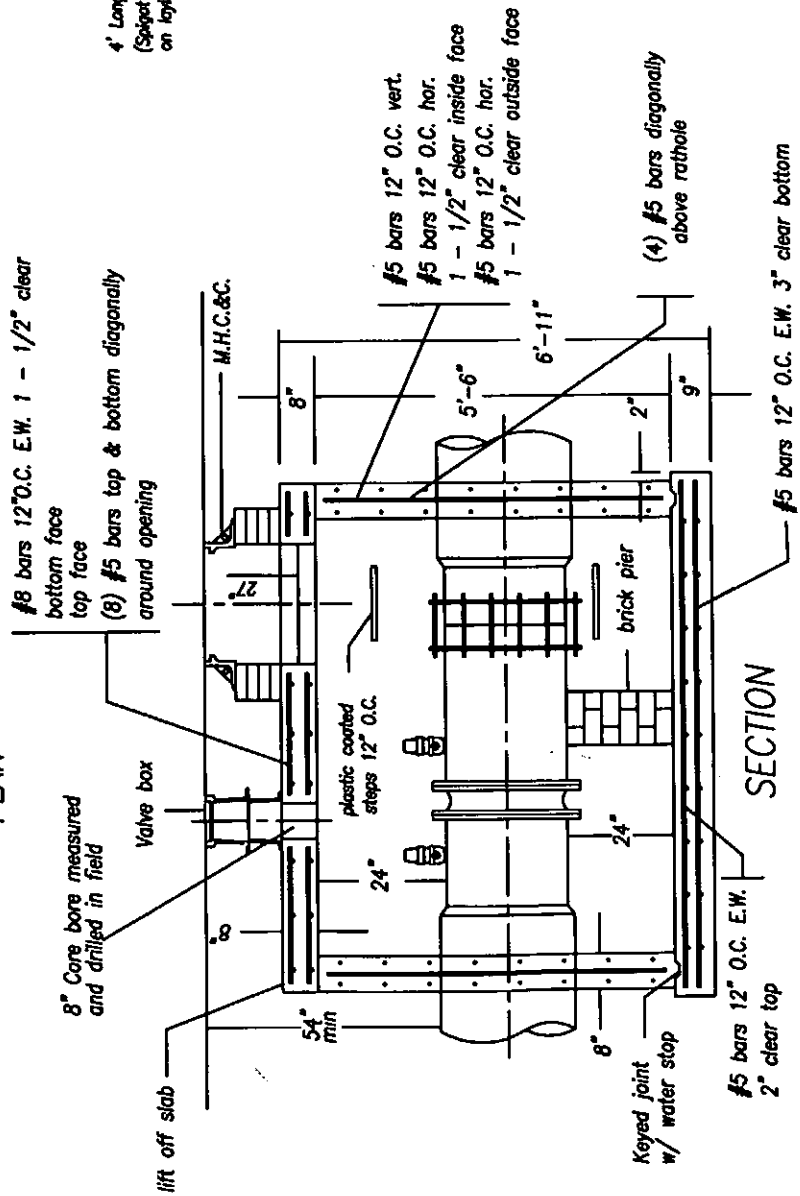
STANDARD DRAWING

104-5A

DATE
11/2/96



PLAN



* Laying Length of Valve Depends Upon Manufacturer and Size

BUTTERFLY VALVE VAULT
16" PRECAST

CINCINNATI WATER WORKS
ENGINEERING DIVISION

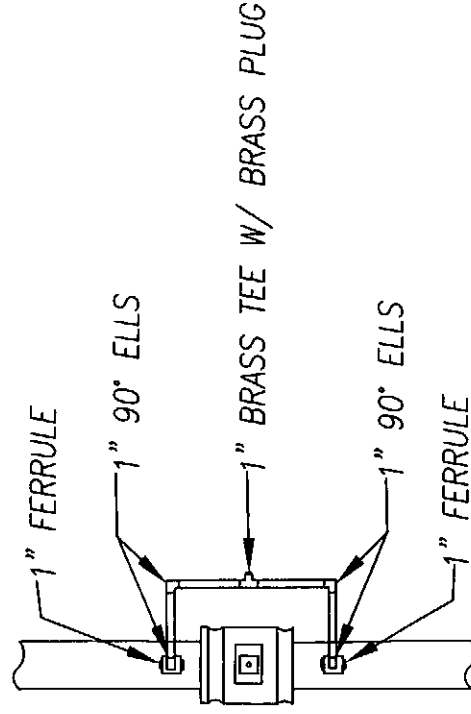
DATE
5-12-06

APPROVED * STANDARD DRAWING

104-5B

LOW LEAD BY-PASS PIPING MATERIAL

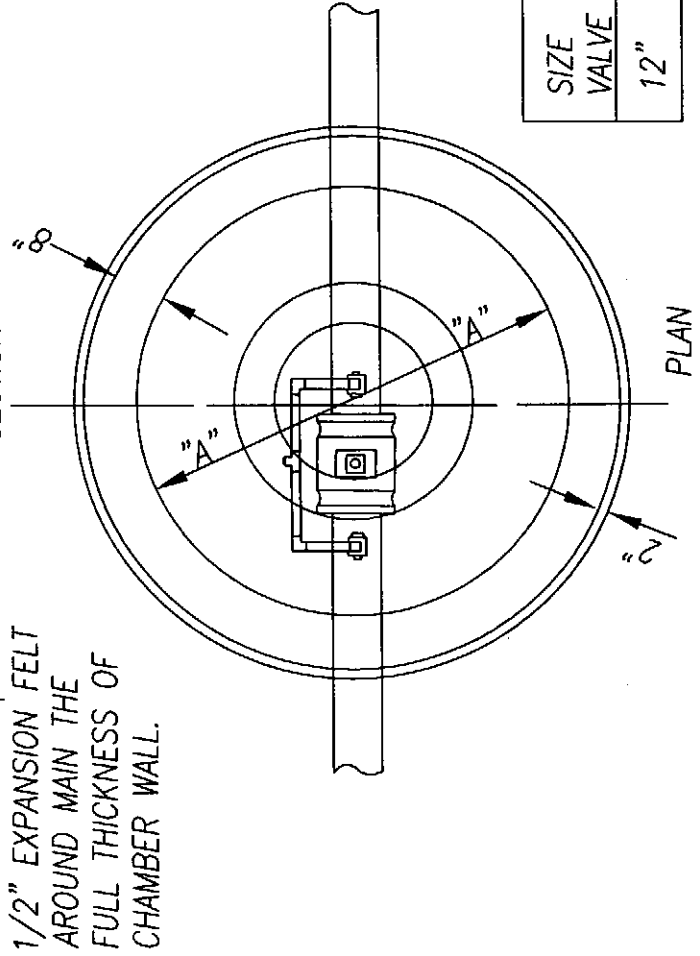
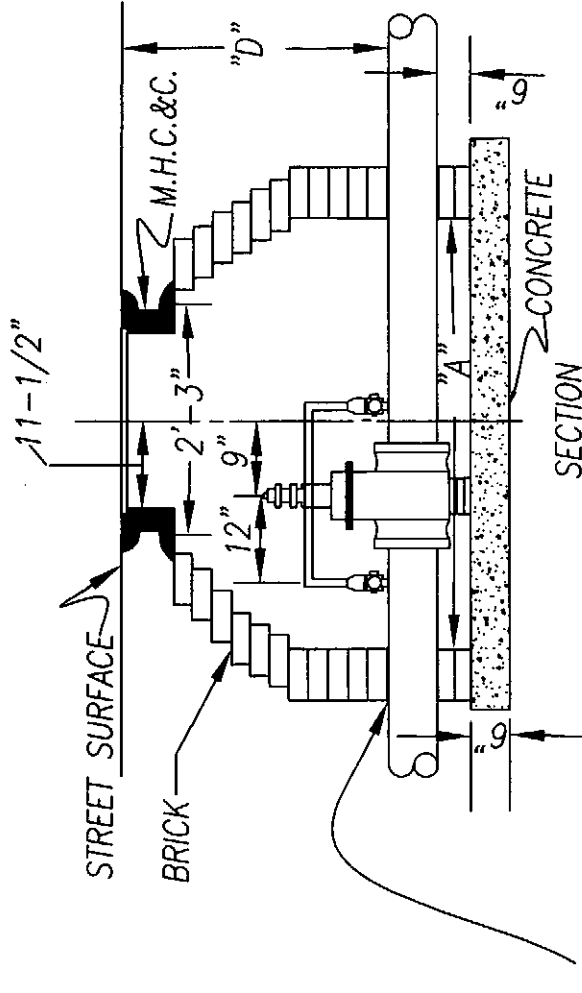
- 8- LIN. FT. 1" COPPER SERVICE PIPE
- 2- 1" FERRULES
- 4- 1" 90° ELLS (SWEAT FITTING)
- 1- 1" BRASS TEE (SWEAT x FEMALE IRON PIPE THREADED OUTLET)
- 1- 1" BRASS PLUG (IRON PIPE THREAD)



BY-PASS ASSEMBLY
DETAIL

NOTE:

BY-PASS MATERIAL FURNISHED AND
INSTALLED BY CONTRACTOR.



SIZE VALVE	"A"	"D"
12"	5'-0"	3'-6"

12" VALVE CHAMBER FOR WATER
PRESSURE OVER 100 P.S.I.

CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED

[Signature]

STANDARD DRAWING

104-6

DATE
5-12-06

NOTE: PRECAST REINFORCED CONCRETE CHAMBER SHALL MEET ODOT SPECIFICATION 706.13 AND ASTM SPECIFICATION C-478

1. PROVIDE A MINIMUM OF 2 1/2" CLEARANCE BETWEEN PRECAST CHAMBER AND PIPE.
2. 1/2" EXPANSION FELT AROUND PIPE THE FULL THICKNESS OF THE CHAMBER WALL.
3. ALL OPENINGS AROUND PIPE SHALL BE THOROUGHLY GROUTED WITH CEMENT MORTAR.

LOW LEAD BY-PASS MATERIAL

- 8-LIN. FT. 1" COPPER SERVICE PIPING
- 2-1" FERRULES
- 4-1" 90° ELLS (SWEAT FITTINGS)
- 1-1" BRASS TEE (SWEAT X FEMALE WITH IRON PIPE THREADED OUTLET)
- 1-1" BRASS PLUG (IRON PIPE THREADED)

NOTE: MATERIALS FURNISHED AND INSTALLED BY CONTRACTOR.

12" VALVE CHAMBER FOR WATER PRESSURE OVER 100 P.S.I. (PRE-CAST)

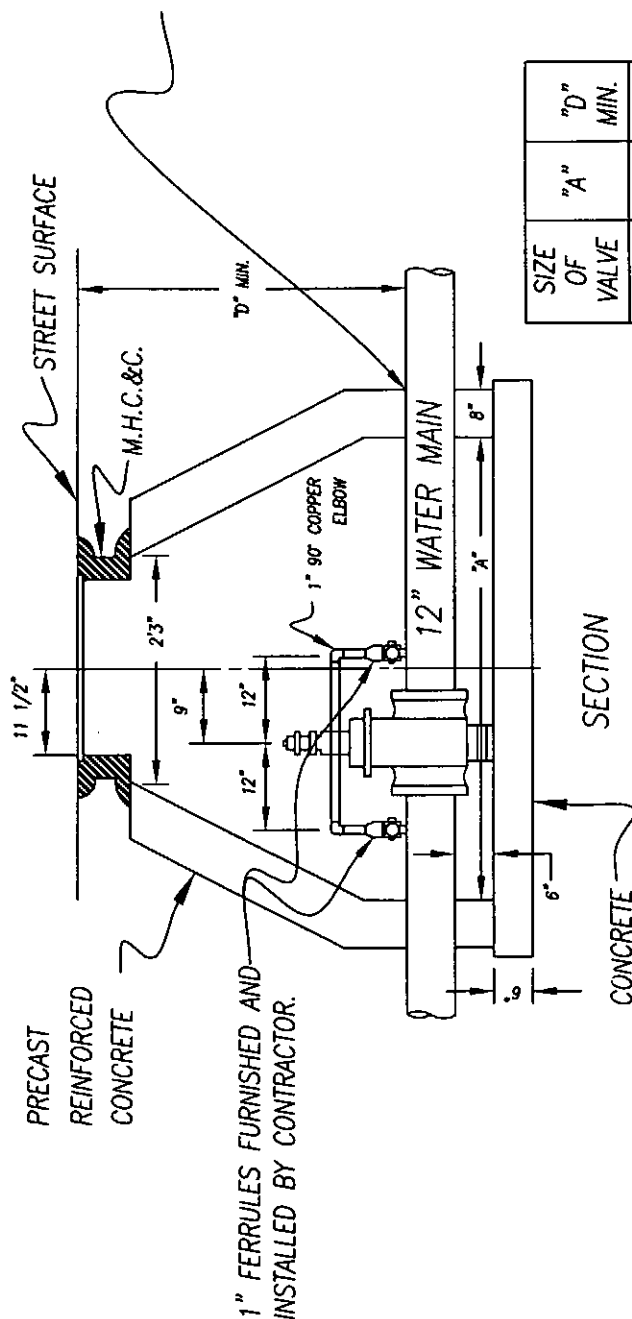
DATE
5-12-06

CINCINNATI WATER WORKS
ENGINEERING DIVISION

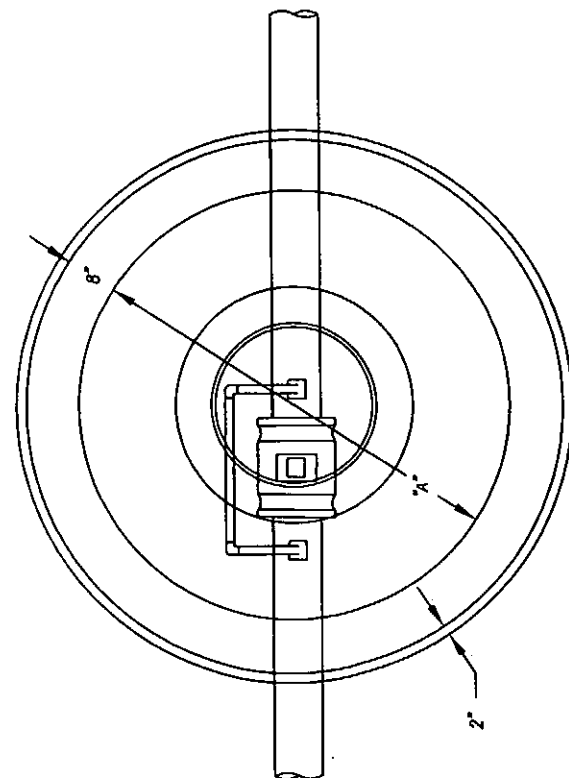
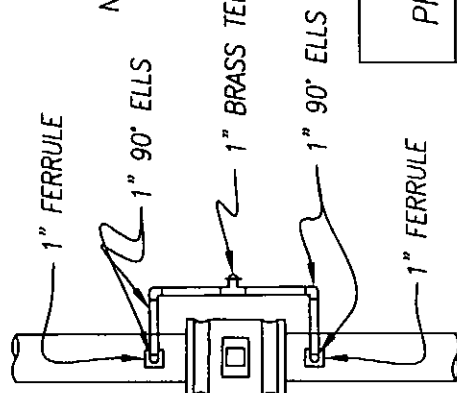
STANDARD DRAWING

104-6A

BY-PASS ASSEMBLY
DETAIL



SIZE OF VALVE	"A"	"D" MIN.
12"	5'0"	3'6"

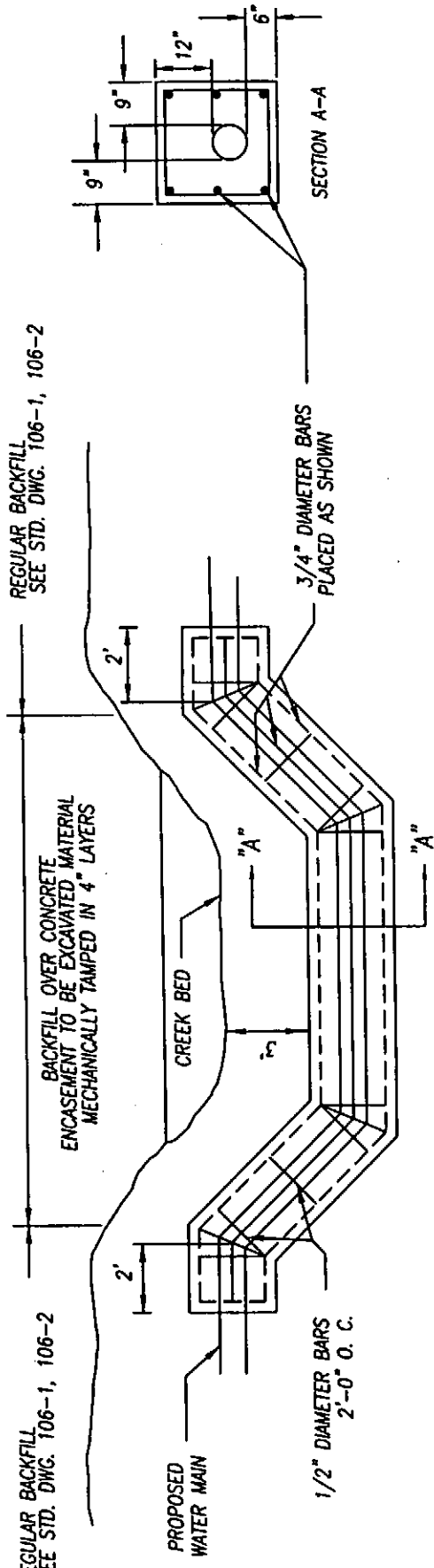


PLAN

REGULAR BACKFILL
SEE STD. DWG. 106-1, 106-2

BACKFILL OVER CONCRETE
ENCASEMENT TO BE EXCAVATED MATERIAL
MECHANICALLY TAMPED IN 4" LAYERS

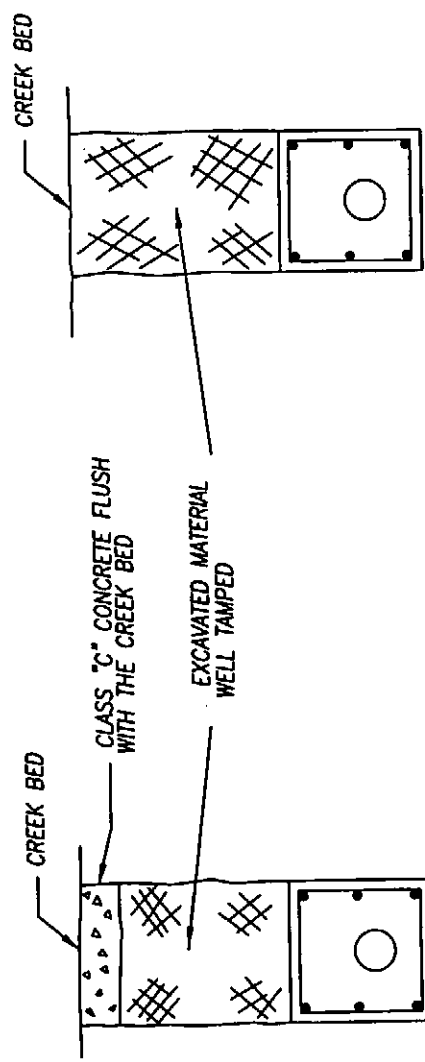
REGULAR BACKFILL
SEE STD. DWG. 106-1, 106-2



MATERIAL

CONCRETE CLASS "C" - ITEM 1110
STEEL REINFORCING - DEFORMED
INTERMEDIATE GRADE - ITEM 509

NOTE: IN LIEU OF STEEL REINFORCING BARS, THE
CONTRACTOR HAS THE OPTION TO USE WELDED
WIRE FABRIC SHEETS (12 X 12- W 5.8 X W 5.8)
AT 42 LBS. PER 100 SQ. FT.



BACKFILL AND RESTORATION
IN ROCK EXCAVATION

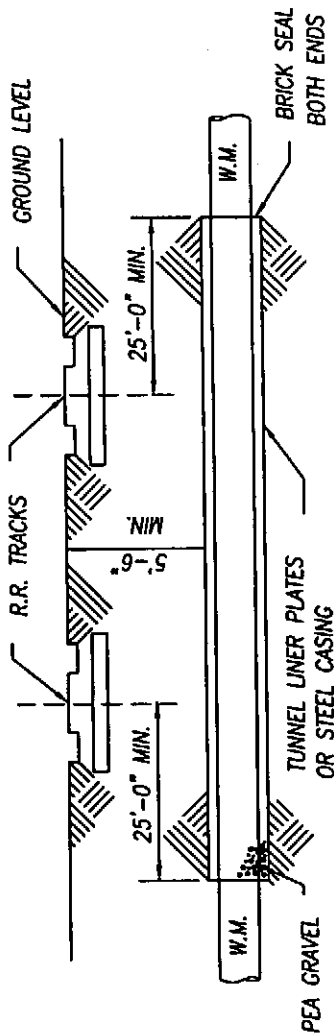
NOTE: 6" CONCRETE PAD TO EXTEND
TO WIDTH OF CREEK BED ONLY

BACKFILL AND RESTORATION
IN NORMAL EXCAVATION

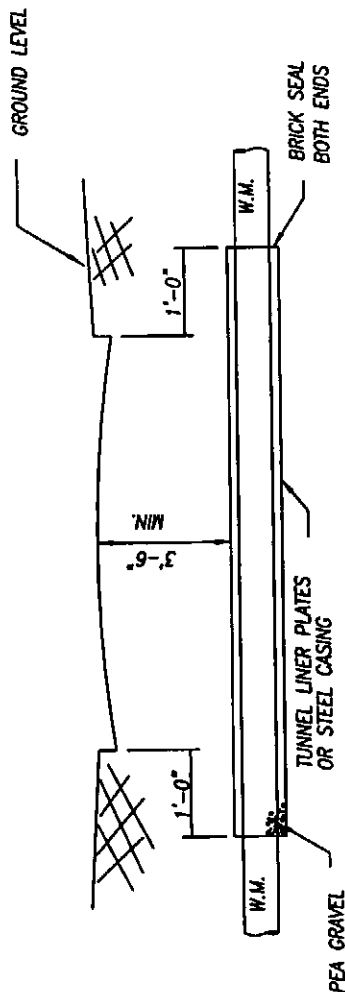
STANDARD CREEK CROSSING CONCRETE ENCASEMENT

CINCINNATI WATER WORKS ENGINEERING DIVISION		DATE 11/2/96
APPROVED <i>Paul E. Tamm</i>	STANDARD DRAWING 105-1	

TUNNEL LINER PLATES FOR 16" W.M.'S AND LARGER	
PIPE SIZE	LINER PLATE DIA
16"	60"
20"	66"
24"	72"
30"	78"
36"	84"
42"	90"
48"	96"



RAILROAD CROSSING



HIGHWAY CROSSING CROSSING PROVISIONS

CASING PIPE MAY HAVE A PLATE THICKNESS 1/16" LESS THAN AS LISTED ABOVE IF IT IS CATHODICALLY PROTECTED.

TUNNEL LINER PLATES (ITEM 1107) AND STEEL CASING (ITEM 1108) INSTALLATIONS TO BE IN ACCORDANCE WITH THE CITY OF CINCINNATI'S SUPPLEMENT TO STATE OF OHIO, DEPARTMENT OF HIGHWAY CONSTRUCTION AND MATERIAL SPECIFICATIONS. TUNNEL LINER GAGE SHALL BE DESIGNED AND SUBMITTED TO CINCINNATI WATER WORKS FOR APPROVAL ON A PROJECT BY PROJECT BASIS.

ALL WATER MAIN JOINTS WITHIN CASING OR TUNNEL LINER TO BE RESTRAINED.

ALL PIPE WITHIN CASING SHALL BE INSTALLED WITH CASING INSULATORS WITH 2" WIDE GLASS REINFORCED RUNNER (PSI MODEL A12 OR APPROVED EQUAL) WITH 2-INSULATORS PER PIPE SECTION. (ALL INSULATORS TO BE PRE APPROVED BY C.W.W.)

COMPLETELY FILL ALL VOIDS BETWEEN THE OUTSIDE OF THE PIPE AND THE CASING WITH PEA GRAVEL.

STEEL CASING FOR 24" W.M. & SMALLER & FOR BRANCHES 4" & LARGER

PIPE SIZE	RAILROAD		HIGHWAY	
	CASING O.D.	PLATE THICKNESS	CASING O.D.	PLATE THICKNESS
4"	14"	3/8"	14"	5/16"
6"	18"	3/8"	16"	5/16"
8"	20"	3/8"	18"	5/16"
10"	22"	3/8"	20"	5/16"
12"	24"	3/8"	24"	5/16"
16"	30"	7/16"	30"	3/8"
24"	42"	7/16"	42"	7/16"

HIGHWAY & RAILROAD CASING CROSSING

DATE
11/2/96

CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED

Paul E. Toner

STANDARD DRAWING

105-2

FILLER ROD WELDED 360°. FIELD WELD
MADE IN A SERIES OF 6 INCH INTERMITTENT
WELDS TO AVOID OVERHEATING THE GASKET.

MORTAR HELD BACK
AT MANUFACTURERS PLANT

GROUT JOINT AFTER
WELDING

BELL

45°

1/2" 1/2"

GROUT JOINT
AFTER LAYING
24" PIPE & LARGER

SPIGOT

WELDED TYPE TIED JOINT CONCRETE PIPE

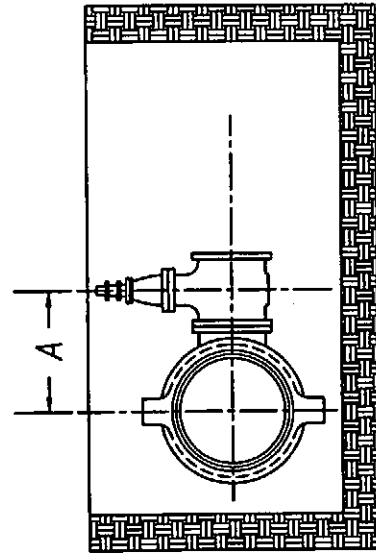
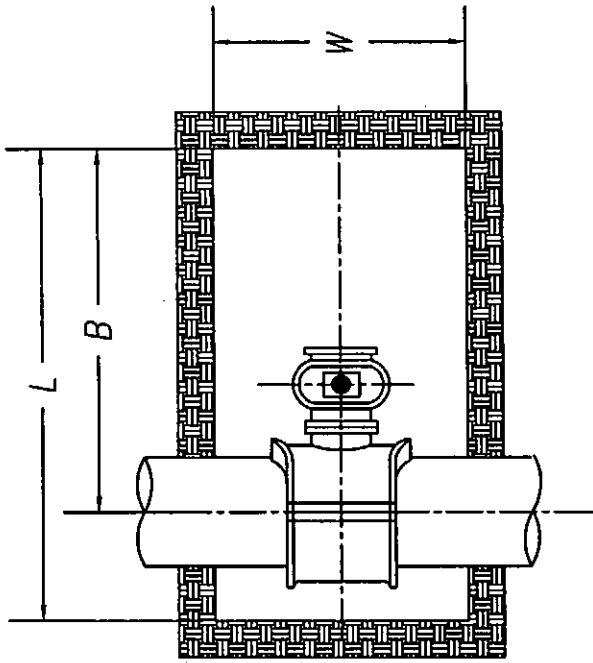
DATE
10/26/86

CINCINNATI WATER WORKS
ENGINEERING DIVISION

STANDARD DRAWING

APPROVED
Paul E. Toner

105-3



SIZE	A	B	W	L
6 X 4	13"	6'-8"	4'-11"	8'-8"
6 X 6	14- $\frac{1}{8}$ "	6'-10"	5'-1"	8'-10"
8 X 4	13- $\frac{7}{8}$ "	6'-9"	4'-11"	8'-10"
8 X 6	15- $\frac{7}{8}$ "	7'-0"	5'-1"	9'-1"
8 X 8	16- $\frac{1}{8}$ "	7'-2"	5'-3"	9'-4"
10 X 4	15	6'-10"	4'-11"	9'-0"
10 X 6	16- $\frac{9}{16}$ "	7'-1"	5'-1"	9'-3"
10 X 8	17- $\frac{9}{16}$ "	7'-3"	5'-3"	9'-6"
10 X 10	17- $\frac{1}{8}$ "	7'-4"	5'-5"	9'-7"
12 X 4	16- $\frac{1}{4}$ "	6'-11"	4'-11"	9'-2"
12 X 6	17- $\frac{1}{8}$ "	7'-2"	5'-1"	9'-6"
12 X 8	18- $\frac{1}{8}$ "	7'-4"	5'-3"	9'-7"
12 X 10	19- $\frac{1}{8}$ "	7'-5"	5'-5"	9'-8"
12 X 12	19- $\frac{5}{16}$ "	7'-6"	5'-7"	9'-9"
16 X 4	19- $\frac{5}{16}$ "	7'-3"	4'-11"	9'-8"
16 X 6	20- $\frac{1}{4}$ "	7'-6"	5'-1"	9'-11"
16 X 8	21- $\frac{7}{8}$ "	7'-8"	5'-3"	10'-1"
16 X 10	22- $\frac{1}{4}$ "	7'-7"	5'-5"	10'-2"
16 X 12	22- $\frac{9}{16}$ "	7'-9"	5'-7"	10'-4"

SIZE	A	B	W	L
20 X 4	21- $\frac{1}{2}$ "	7'-5"	4'-11"	10'-0"
20 X 6	22- $\frac{5}{8}$ "	7'-8"	5'-1"	10'-3"
20 X 8	24- $\frac{1}{8}$ "	7'-10"	5'-3"	10'-5"
20 X 10	24- $\frac{7}{8}$ "	7'-10"	5'-5"	10'-5"
20 X 12	24- $\frac{3}{4}$ "	7'-11"	5'-7"	10'-6"
24 X 4	23- $\frac{1}{8}$ "	7'-7"	4'-11"	10'-4"
24 X 6	25- $\frac{1}{8}$ "	7'-10"	5'-1"	10'-7"
24 X 8	26- $\frac{1}{4}$ "	8'-0"	5'-3"	10'-9"
24 X 10	26- $\frac{5}{8}$ "	8'-1"	5'-5"	10'-10"
24 X 12	26- $\frac{1}{2}$ "	8'-1"	5'-7"	10'-10"
30 X 4	27- $\frac{1}{8}$ "	7'-11"	4'-11"	10'-11"
30 X 6	28- $\frac{3}{8}$ "	8'-1"	5'-1"	11'-1"
30 X 8	29- $\frac{1}{4}$ "	8'-3"	5'-3"	11'-3"
30 X 10	30- $\frac{1}{8}$ "	8'-4"	5'-5"	11'-4"
30 X 12	30- $\frac{5}{8}$ "	8'-4"	5'-7"	11'-4"
36 X 4	30- $\frac{1}{2}$ "	8'-2"	4'-11"	11'-6"
36 X 6	31- $\frac{1}{8}$ "	8'-5"	5'-1"	11'-9"
36 X 8	33- $\frac{1}{8}$ "	8'-6"	5'-3"	11'-10"
36 X 10	33- $\frac{7}{8}$ "	8'-6"	5'-5"	11'-10"
36 X 12	33- $\frac{5}{8}$ "	8'-7"	5'-7"	11'-11"

EXCAVATION FOR WATER WORKS CONNECTIONS

DATE
10/20/96

CINCINNATI WATER WORKS
ENGINEERING DIVISION

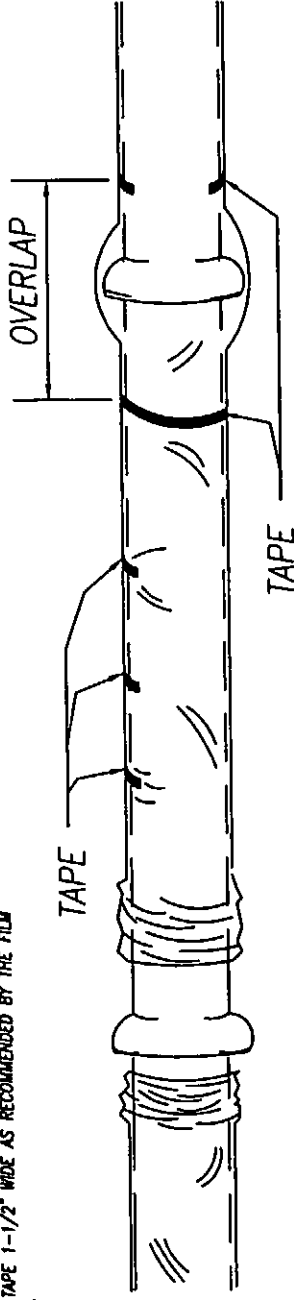
STANDARD DRAWING

APPROVED
Paul L. Toms

105-4

TAPE MATERIAL
POLYETHYLENE
MANUFACTURER

TAPE 1-1/2" WIDE AS RECOMMENDED BY THE FILM



MATERIAL SPECIFICATIONS
IN ACCORDANCE WITH ASTM D-1248 TYPE I, CLASS A OR C,
GRADE E-1 FLOW RATE 0.4 MAX, DIELECTRIC STRENGTH
VOLUME RESISTIVITY MIN. OHM-CM "3"=10¹⁶
POLYETHYLENE FILM THICKNESS 8 MILS
TENSILE STRENGTH 1200 P.S.I. MIN
ELONGATION 300% MIN
DIELECTRIC STRENGTH 800 VOLTS/MIL

THE FOLLOWING METHOD ILLUSTRATES THE PROCEDURE FOR APPLYING POLYETHYLENE:

CUT POLYETHYLENE TUBE TO A LENGTH APPROXIMATELY TWO FEET LONGER THAN THE LENGTH OF THE PIPE SECTION, SLIP THE TUBE AROUND THE PIPE, CENTERING IT TO PROVIDE A ONE-FOOT OVERLAP ON EACH ADJACENT PIPE SECTION, AND BUNCHING IT ACCORDION FASHION LENGTHWISE UNTIL IT CLEARS THE PIPE ENDS.

LOWER THE PIPE INTO THE TRENCH AND MAKE THE PIPE JOINT WITH THE PRECEDING SECTION OF PIPE. A SHALLOW BELL HOLE MUST BE MADE AT THE JOINTS TO FACILITATE INSTALLATION OF THE POLYETHYLENE TUBE.

AFTER ASSEMBLING THE PIPE JOINT, MAKE THE OVERLAP OF THE POLYETHYLENE TUBE, PULL THE BUNCHED POLYETHYLENE FROM THE PRECEDING LENGTH OF PIPE, SLIP IT OVER THE END OF THE NEW LENGTH OF PIPE AND SECURE IT IN PLACE. THEN SLIP THE END OF THE POLYETHYLENE FROM THE NEW PIPE SECTION OVER THE END OF THE PRECEDING LENGTH OF PIPE, SECURE THE OVERLAP IN PLACE, TAKE UP THE SLACK WIDTH TO MAKE IT SNUG, BUT NOT TO TIGHT, FIT ALONG THIS BARREL OF PIPE, SECURING THE FOLD AT QUARTER POINTS.

REPAIR ANY RIPS, PUNCTURES, OR OTHER DAMAGE TO THE POLYETHYLENE WITH ADHESIVE TAPE OR WITH A SHORT LENGTH OF THE POLYETHYLENE TUBE CUT OPEN, WRAPPED AROUND THE PIPE, AND SECURED IN PLACE. PROCEED WITH INSTALLATION OF THE NEXT SECTION OF PIPE IN THE SAME MANNER.

PIPE-SHAPED APPURTENANCES:
BENDS, REDUCERS, OFFSETS AND OTHER PIPE-SHAPED APPURTENANCES SHALL BE COVERED WITH POLYETHYLENE IN THE SAME MANNER AS THE PIPE.

JUNCTIONS BETWEEN WRAPPED AND UNWRAPPED PIPE:
WHERE POLYETHYLENE WRAPPED PIPE JOINS A PIPE WHICH IS NOT WRAPPED, EXTEND THE POLYETHYLENE TUBE TO COVER THE UNWRAPPED PIPE A DISTANCE OF AT LEAST TWO FEET. SECURE THE END WITH CIRCUMFERENTIAL TURNS OF TAPE.

ODD SHAPED APPURTENANCES:
VALVES, TEES, CROSSES AND OTHER ODD-SHAPED PIECES WHICH CANNOT BE WRAPPED PRACTICALLY IN A TUBE SHALL BE WRAPPED WITH A FLAT SHEET OR SPLIT LENGTH OF POLYETHYLENE TUBE. THE SHEET SHALL BE PASSED UNDER THE APPURTENANCE AND BROUGHT UP AROUND THE BODY. SEAMS SHALL BE MADE BY BRINGING THE EDGES TOGETHER, FOLDING OVER TWICE, AND TAPPING DOWN. SLACK WIDTH AND OVERLAPS AT JOINTS SHALL BE HANDLED AS DESCRIBED ABOVE. TAPE POLYETHYLENE SECURELY IN PLACE AT VALVE STEM AND OTHER PENETRATIONS.

BACKFILL FOR POLYETHYLENE WRAPPED PIPE:
BACKFILL MATERIAL SHALL BE THE SAME AS SPECIFIED FOR PIPE WITHOUT POLYETHYLENE WRAPPING. SPECIAL CARE SHOULD BE TAKEN TO PREVENT DAMAGE TO THE POLYETHYLENE WRAPPING WHEN PLACING BACKFILL, BACKFILL MATERIAL SHOULD BE FREE FROM CINDERS, REFUSE, BOULDERS, ROCKS, STONES OR OTHER MATERIAL THAT COULD DAMAGE POLYETHYLENE.

TUBE SIZE REQUIRED							
PIPE DIAMETER	4"	6"	8"	10"	12"	16"	20"
MIN. FLAT TUBE WIDTH (INCHES)	14	16	20	24	27	34	41

POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE

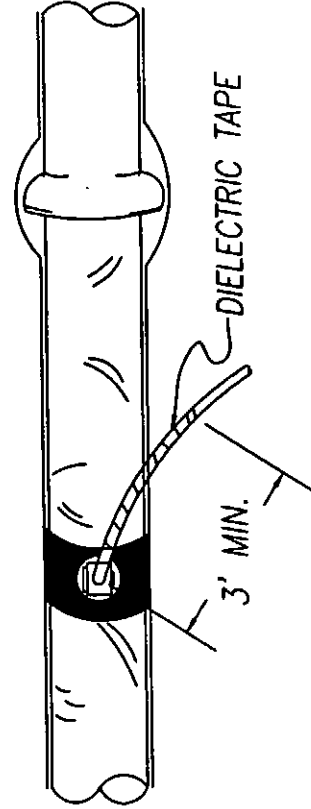
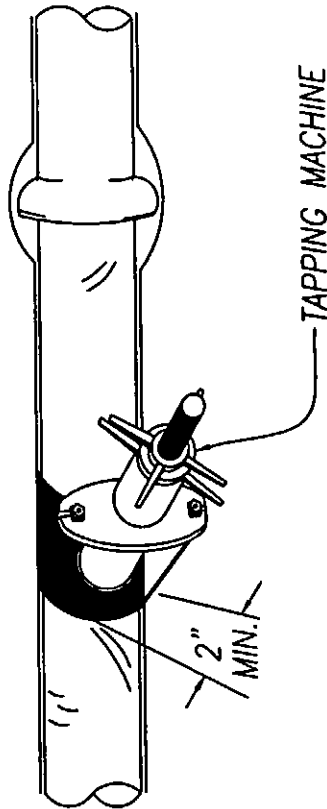
DATE 10/19/96	
CINCINNATI WATER WORKS ENGINEERING DIVISION	
APPROVED <i>Paul E. Tom</i>	STANDARD DRAWING 105-5

POLYVINYL TAPE



OPENINGS FOR BRANCHES, SERVICE TAPS, BLOW-OFFS, AIR VALVES, AND SIMILAR APPURTENANCES SHALL BE MADE BY:

- 1.) WRAPPING (3) THREE LAYERS OF POLYVINYL - COMPATIBLE ADHESIVE TAPE COMPLETELY AROUND THE PIPE TO COVER THE AREA WHERE THE TAPPING MACHINE AND CHAIN WILL BE MOUNTED, EXTENDING A MINIMUM OF 2" BEYOND THE MOUNTING SURFACE.
- 2.) MOUNT THE TAPPING MACHINE ON THE PIPE AREA COVERED BY THE TAPE AND MAKE THE TAP AND INSTALL THE FERRULE DIRECTLY THROUGH THE TAPE AND POLYETHYLENE.
- 3.) INSPECT THE ENTIRE CIRCUMFERENTIAL AREA FOR DAMAGE AND MAKE ANY NECESSARY REPAIRS WITH TAPE.
- 4.) ON HOUSE SERVICES, TO MINIMIZE THE POSSIBILITY OF DISSIMILAR METAL CORROSION AT SERVICE CONNECTIONS, WRAP THE FERRULE AND A MINIMUM CLEAR DISTANCE OF THREE FEET OF THE COPPER SERVICE WITH POLYETHYLENE OR A SUITABLE DIELECTRIC TAPE.



TAPPING POLYETHYLENE ENCASED PIPE

DATE
11/9/96

CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED

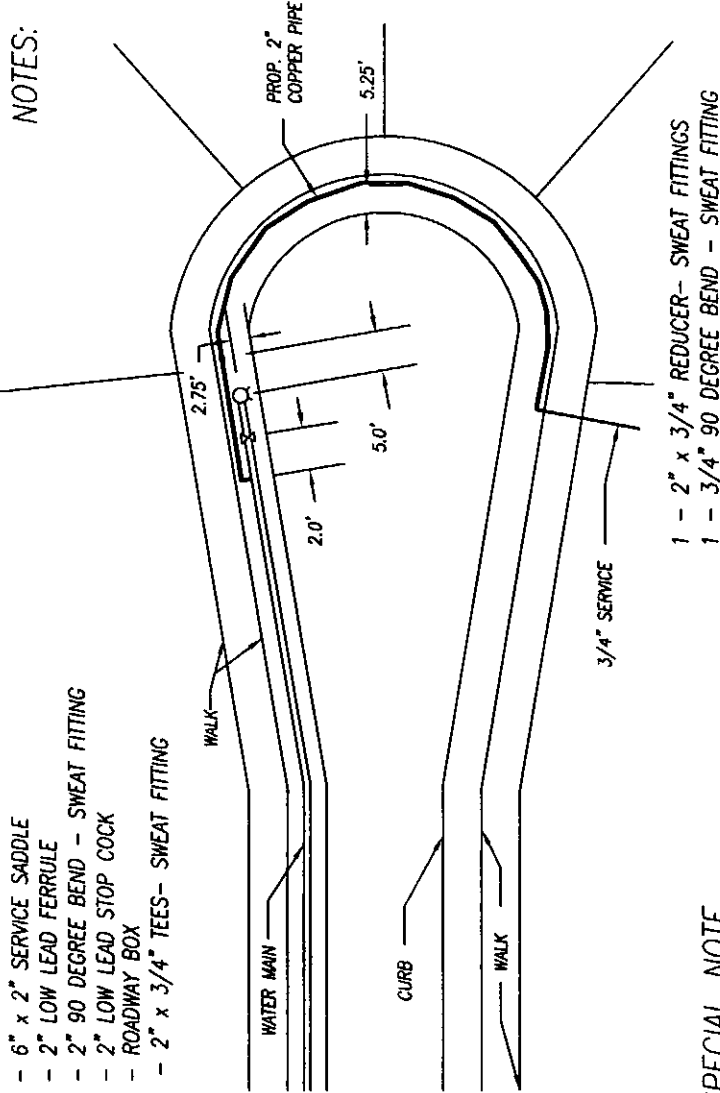
Paul E. Torman

STANDARD DRAWING

105-5A

- 1 - 6" x 2" SERVICE SADDLE
- 1 - 2" LOW LEAD FERRULE
- 1 - 2" 90 DEGREE BEND - SWEAT FITTING
- 1 - 2" LOW LEAD STOP COCK
- 1 - ROADWAY BOX
- 2" x 3/4" TEES- SWEAT FITTING

NOTES:



SPECIAL NOTE

THIS 2 INCH COPPER PIPE INSTALLATION WILL ONLY BE PERMITTED UNDER THE FOLLOWING CONDITIONS:

1. MAXIMUM OF FIVE(5) SINGLE FAMILY 3/4" DOMESTIC WATER SERVICES.
2. LENGTH OF 2 INCH COPPER PIPE NOT TO EXCEED 200 FEET.
3. MINIMUM STATIC PRESSURE OF 55 P.S.I. AS DETERMINED BY THE CINCINNATI WATER WORKS.

1. THE 2 INCH COPPER PIPE MUST BE INSTALLED BY A CERTIFIED TAPPER INSTALLING THE SERVICE BRANCHES WITHIN THE SUBDIVISION. THE GUARANTEE PERIOD FOR THE 2 INCH COPPER PIPE WILL BE INCLUDED IN THE DEVELOPER'S BOND FOR THE SERVICE BRANCH INSTALLATIONS.
2. APPLICATION FOR EACH SUBDIVISION SERVICE BRANCHES MUST BE MADE PRIOR TO THE INSTALLATION OF THE 2 INCH COPPER PIPE AND FITTINGS.
3. ROADWAY BOXES MUST BE PURCHASED FROM THE CINCINNATI WATER WORKS.
4. THE CONTRACTOR WILL FURNISH THE 2 INCH FERRULE, 2 INCH STOP COCK, AND SERVICE SADDLES, AND PROVIDE MANUFACTURER'S CERTIFICATION.
5. NO ADDITIONAL JOINTS WILL BE PERMITTED IN THE 2 INCH COPPER PIPE BETWEEN THE BRANCH AND THE TEE.
6. ALL FITTINGS AND JOINTS SHALL REMAIN EXPOSED FOR VISUAL INSPECTION UNTIL AFTER THE 2 INCH COPPER LINE HAS BEEN PLACED IN SERVICE.
7. THE CONTRACTOR WILL BE REQUIRED TO PROVIDED MANUFACTURER'S CERTIFICATION FOR COPPER TUBING IN ACCORDANCE WITH A.S.T.M. B-88, TYPE K, AND BRONZE FITTINGS IN ACCORDANCE WITH A.N.S.I. (A.S.A.) B-16.22.
8. THE 2 INCH COPPER PIPE SHALL BE PROPERLY DISINFECTED PRIOR TO BEING PLACED IN SERVICE.
9. ALL SWEAT JOINTS MUST BE MADE WITH SOLDER THAT MEETS THE COMPOSITION REFERRED TO AS ALLOY GRADE Sb5 OR Sn96 AS PRESCRIBED IN TABLE 5 OF ASTM B 32-83.

2" COPPER PIPE INSTALLATION
FOR CUL-DE-SAC

CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 5-12-06
APPROVED <i>[Signature]</i>	STANDARD DRAWING 105-6

REQUIREMENTS OF THE DIRECTOR

THE CINCINNATI WATER WORKS WILL DETERMINE THE LENGTH OF ALL WATER MAINS AND THE MINIMUM NUMBER OF PANHANDLE LOTS TO BE SERVED ALONG PRIVATE DRIVE EASEMENTS ON AN INDIVIDUAL BASIS.

A FULL TIME SOIL TECHNICIAN WILL BE REQUIRED THROUGHOUT ALL PHASES OF THE EARTHWORK CONSTRUCTION FOR THE PRIVATE DRIVE IN ORDER TO PERFORM ALL THE NECESSARY SOIL TESTING AND INSPECTION. THE ENGINEER WILL BE RESPONSIBLE FOR FURNISHING THE CINCINNATI WATER WORKS A COMPLETE SET OF INSPECTION AND TESTING LOG NOTES AND/OR CERTIFICATIONS PRIOR TO INSTALLING ANY WATER MAIN IN THE PUBLIC DRIVE.

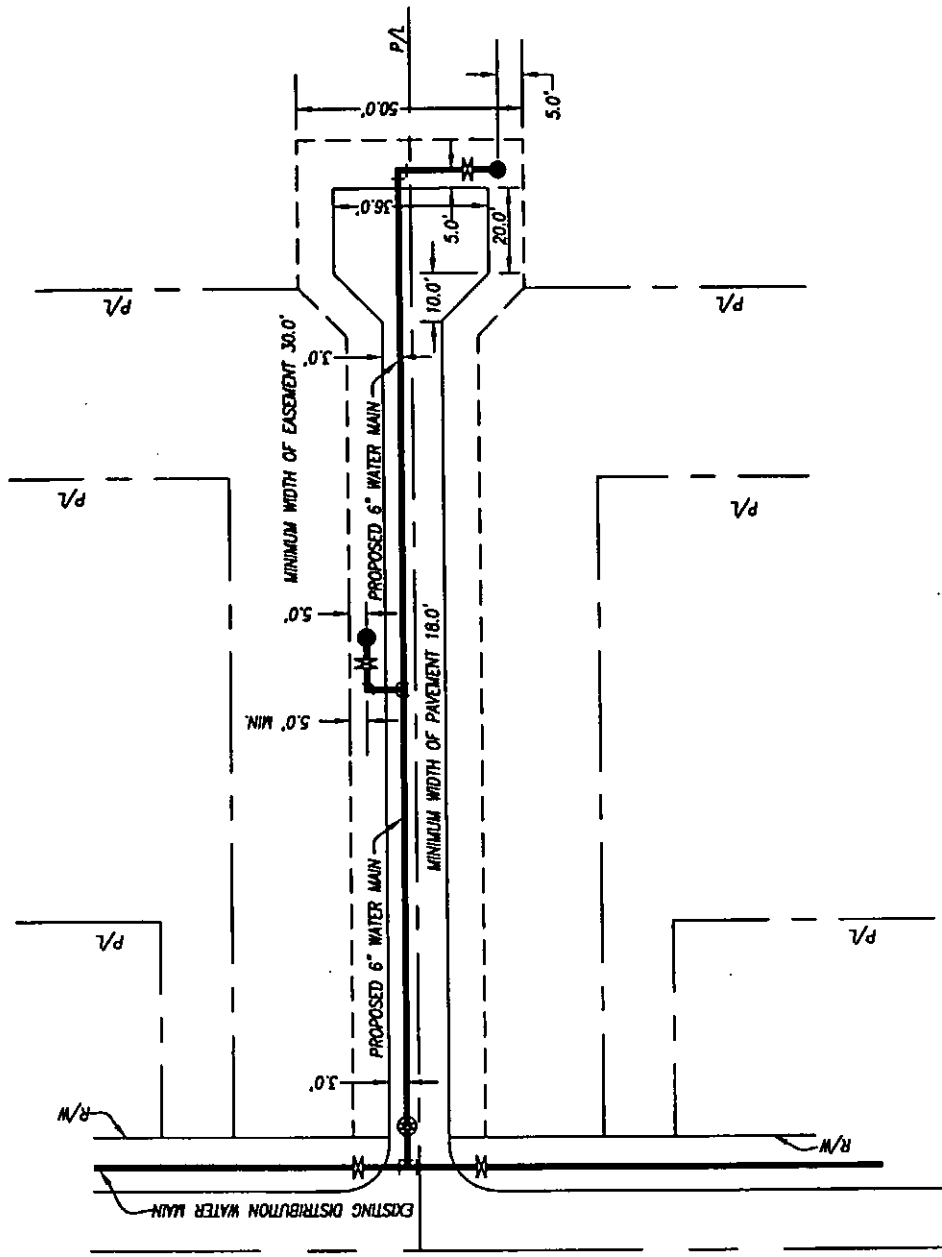
ALL PUBLIC WATER MAINS TO SERVE PANHANDLE LOTS MUST BE INSTALLED WITHIN A 30' MINIMUM WIDTH WATER MAIN EASEMENT. THE WATER WORKS STANDARD EASEMENT RESTRICTIONS WILL APPLY. THE WIDTH OF THE EASEMENT MUST COINCIDE WITH THE WIDTH OF THE PRIVATE DRIVEWAY EASEMENT AND BE SUBJECT TO THE APPROVAL OF THE CINCINNATI WATER WORKS. ALL EASEMENT LINES WILL BE CONSIDERED THE SAME AS A RIGHT-OF-WAY LINE WITH REGARDS TO THE INSTALLATION OF THE WATER MAINS AND APPURTENANCES. THE ENGINEER WILL BE RESPONSIBLE FOR PREPARING AND RECORDING THE NECESSARY EASEMENT PLAT. THE CITY OF CINCINNATI WILL PASS LEGISLATION FOR ACCEPTANCE OF ALL EASEMENTS FOR THE CINCINNATI WATER WORKS.

THE LOCATION OF ALL STOPS, METER SETTINGS, WATER MAIN VALVES AND FIRE HYDRANTS MUST BE IN CONFORMANCE WITH THE APPROPRIATE CINCINNATI WATER WORKS STANDARD DRAWINGS OR AS NOTED ON THE PLANS. ALL STANDARD WATER WORKS NOTES MUST APPEAR ON THE APPROVED CITY OR COUNTY WATER SUPPLY LINE PLANS.

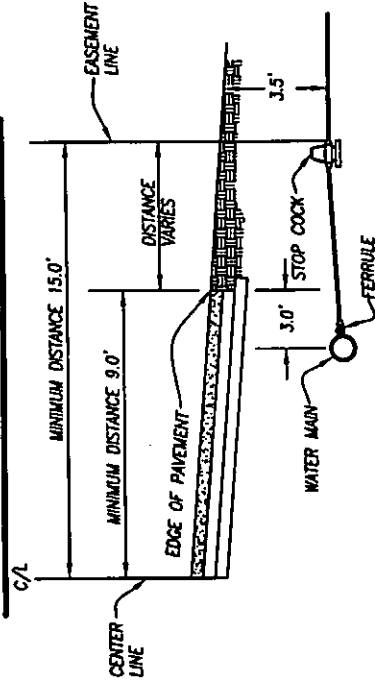
OWNERS OF PROPERTY SERVED FROM A PUBLIC WATER MAIN IN A PRIVATE DRIVE EASEMENT FOR PANHANDLE LOTS WILL BE REQUIRED TO ENTER INTO A DRIVEWAY MAINTENANCE AGREEMENT AS REQUIRED BY THE APPROPRIATE PLANNING COMMISSION AUTHORITY OR SUCH OTHER PUBLIC AUTHORITY HAVING JURISDICTION.

ACCESS DRIVE PAVEMENT TO BE BUILT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, LATEST REVISION.

THE DEVELOPER WILL BE REQUIRED TO INSTALL ALL WATER MAINS AND APPURTENANCES, INCLUDING TAPS, PRIOR TO RECORDING ON THE APPROPRIATE RECORD PLATS.

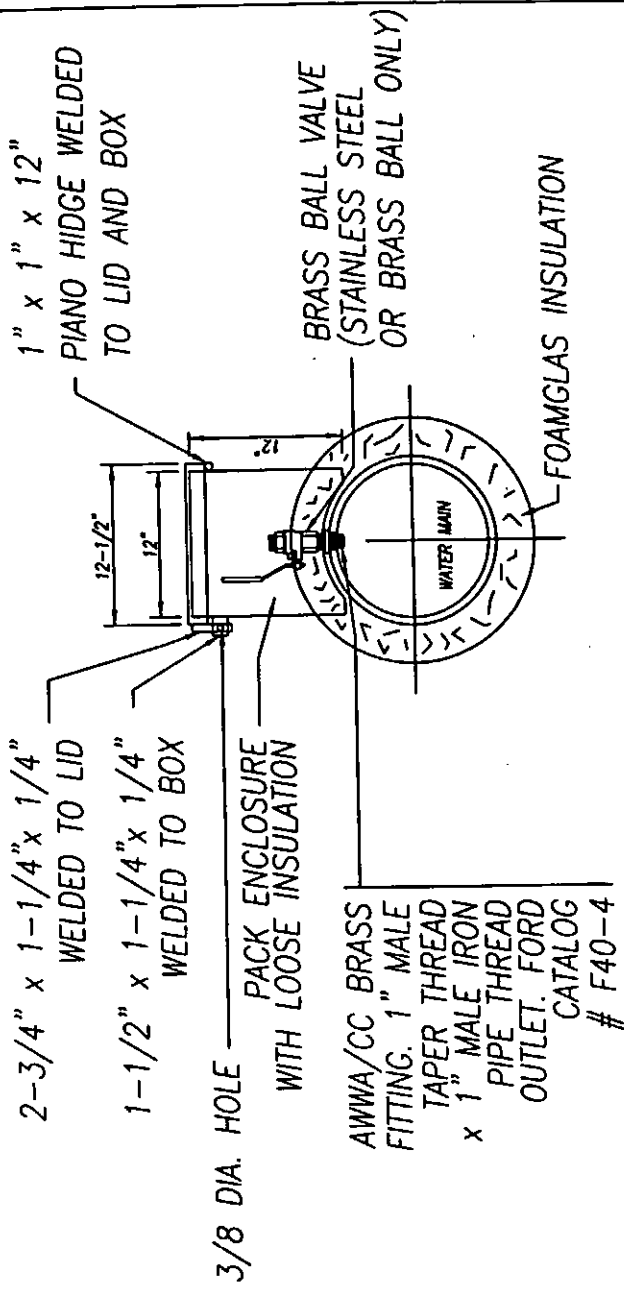
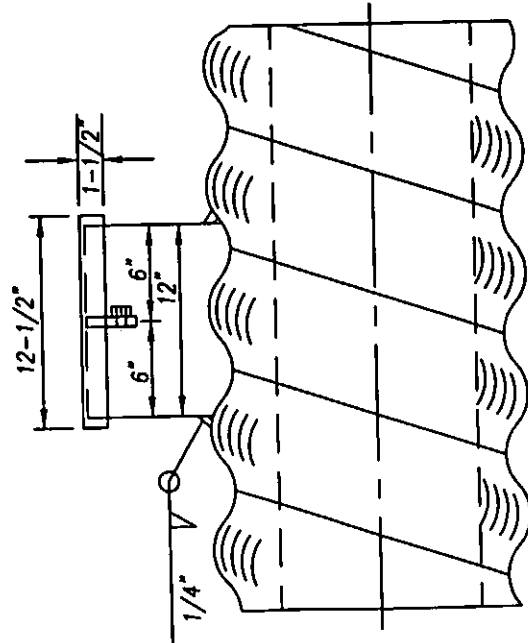
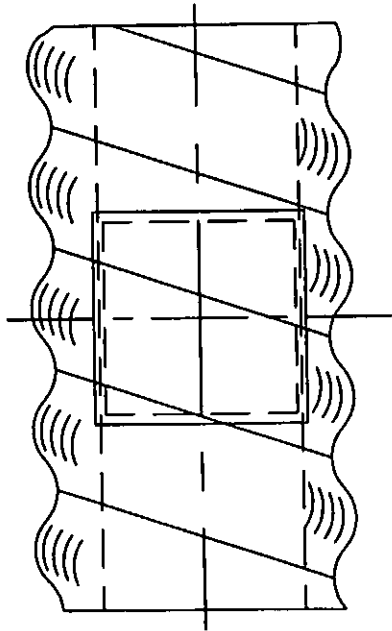


TYPICAL ACCESS DRIVE SECTION



REQUIREMENTS FOR PRIMATE DEVELOPMENTS ON PANHANDLE LOTS

CINCINNATI WATER WORKS ENGINEERING DIVISION	DATE 10/28/96
	APPROVED <i>Paul E. Turner</i> STANDARD DRAWING 105--7



NOTE:

1. BOX TO BE WELDED TO NESTABLE CORRUGATED METAL PIPE PRIOR TO HOT DIP GALVANIZING.
2. BRASS BALL VALVES TO BE 150 lbs. S.W.P. WITH 3" HANDLES, STAINLESS STEEL OR BRASS BALL, BUNA-N-SEATS, CONFORMING TO ASTM 62.

ALL MATERIAL FOR
BOX - 12 GA. MILD STEEL
A-36 HOT ROLLED.
ALL MATERIALS TO BE
HOT DIPPED GALVANIZED.

AIR RELEASE ASSEMBLY STANDARD FOR
WATER MAINS ON BRIDGES

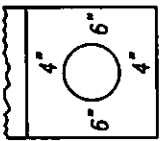
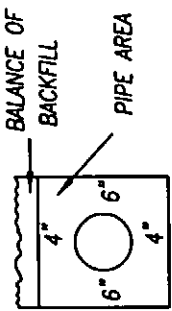
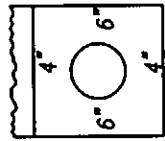
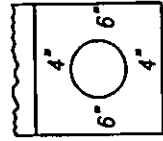
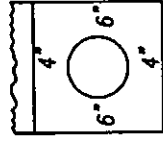
DATE
11/23/06

CINCINNATI WATER WORKS
ENGINEERING DIVISION

STANDARD DRAWING

APPROVED
Paul E. Torman

105-8

BACKFILL CROSS SECTION	METHOD DESIGNATION	FOR NOMINAL PIPE SIZES	PIPE AREA	BALANCE OF BACKFILL
	A	UNDER 12"	EMBEDMENT MATERIAL	GRANULAR MATERIAL
	B	UNDER 12"	EMBEDMENT MATERIAL	COARSE FILL
	A	12" & 16"	EMBEDMENT MATERIAL	GRANULAR MATERIAL
	B	12" & 16"	EMBEDMENT MATERIAL	COARSE FILL
	A	20" & OVER	EMBEDMENT MATERIAL	GRANULAR MATERIAL

TYPICAL BACKFILL REQUIREMENT

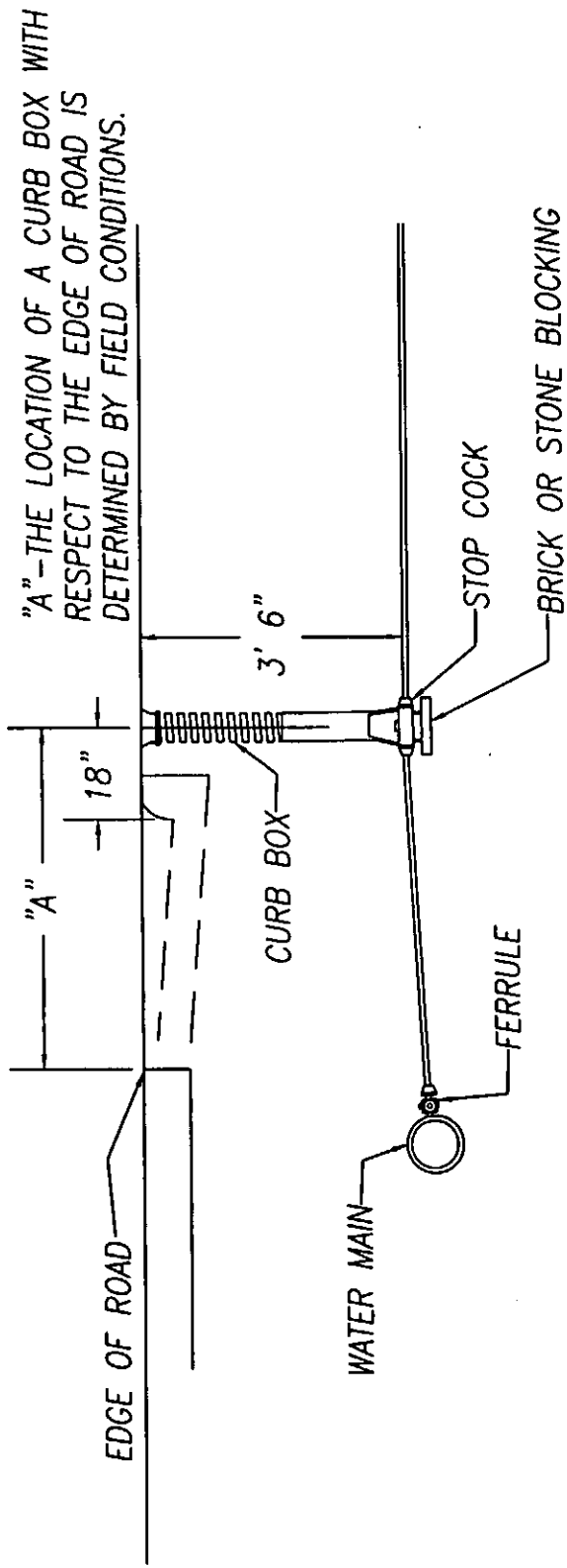
DATE
11/23/96

CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED
STANDARD DRAWING

Paul E. Torres

106-1



**STANDARD SERVICE BRANCH
INSTALLATION WITH CURB BOX**

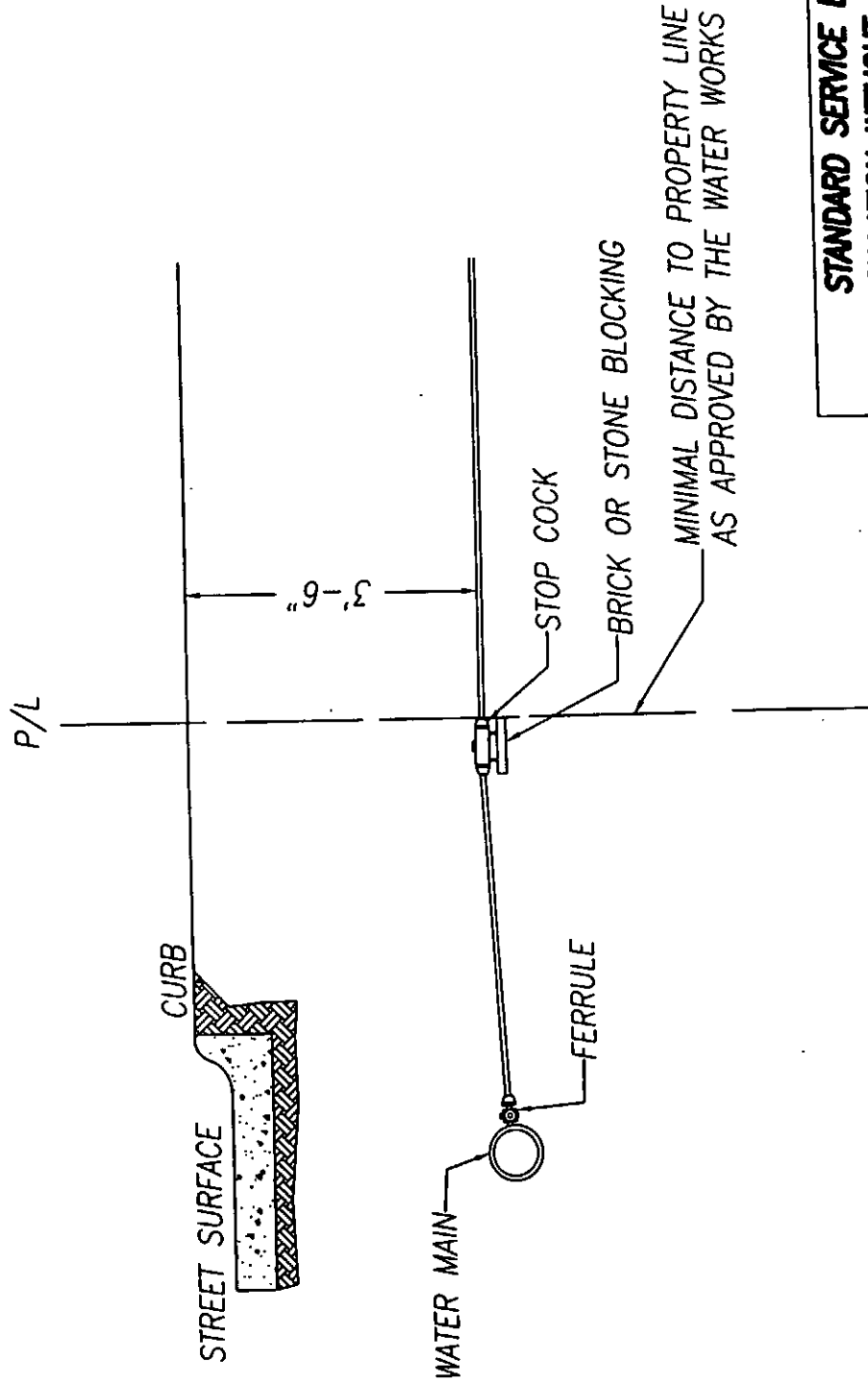
DATE
10/19/96

CINCINNATI WATER WORKS
ENGINEERING DIVISION

APPROVED
STANDARD DRAWING

Paul E. Torner

107-1



STANDARD SERVICE BRANCH		DATE 10/19/96
INSTALLATION WITHOUT CURB BOX		
CINCINNATI WATER WORKS ENGINEERING DIVISION		
APPROVED <i>Paul E. Tamm</i>	STANDARD DRAWING 107-2	


CONSTRUCTION SPECIFICATIONS:

PIT CONSTRUCTION DETAILS:

- 1) METER PIT FLOOR SHALL BE 6" CONCRETE WITH 42 LB. ROAD MESH INSTALLED. THE FLOOR, AT ITS SHALLOWEST POINT MUST BE A MINIMUM OF 6", SLOPED TOWARD THE DRAIN OR SUMP PUMP LOCATION. FLOOR SLAB MUST ALSO HAVE WATER STOP INSTALLED.
- B) METER PIT WALLS SHALL BE 8" CONCRETE WITH 5/8" DIAMETER STEEL REINFORCING RODS 18" CENTERED HORIZONTALLY AND VERTICALLY. REINFORCING STEEL TO BE ANGLED AND EXTEND 18" CENTERED INTO TOP SLAB.
- C) METER PIT TOP SLAB SHALL BE 8" CONCRETE WITH 5/8" DIAMETER REINFORCING RODS, 6" ON CENTER-SHORT SPAN AND 18" ON CENTER-LONG SPAN. REINFORCING STEEL IN TOP SLAB SHALL BE LOCATED IN THE BOTTOM PORTION OF THE SLAB, 2" FROM THE SURFACE. 5/8" REINFORCING STEEL TO BE 2' LONG IN TOP OF SLAB DIAGONALLY AT CORNER OF OPENINGS. TOP SLAB SHALL BE SET TO FINISHED GRADE.

CONCRETE CONSTRUCTION

ALL CONCRETE USED IN CONSTRUCTION OF METER PIT WALLS, FLOORS, AND REINFORCED SLABS SHALL BE COMPOSED OF ONE PART CEMENT, TWO PARTS SAND, AND THREE PARTS AGGREGATE BY WEIGHT AND A MAXIMUM WATER CEMENT RATIO OF 0.50. BEFORE CONCRETE IS PLACED, THE FORMS, REINFORCEMENT STEEL, WATER STOPS, AND ANCHOR BOLTS SHALL BE RIGIDLY SECURED IN PROPER POSITION. ALL DIRT, MUD, WATER, DEBRIS AND OTHER FOREIGN MATERIAL SHALL BE REMOVED FROM THE SPACE TO BE OCCUPIED BY THE CONCRETE. CONCRETE SHALL BE DEPOSITED AND COMPACTED IN THE WALL SLABS BEFORE ANY REINFORCING STEEL IS PLACED IN THE SLAB AREA AND SHALL SETTLE AT LEAST 2 HOURS BEFORE THE SLAB CONCRETE IS POURED. CONCRETE SHALL BE PROTECTED FROM LOSS OF MOISTURE FOR A CURING PERIOD OF AT LEAST 7 DAYS.

 GREATER CINCINNATI WATER WORKS 12/23/03	MATERIAL AND CONSTRUCTION SPECIFICATIONS	
	GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
	APPROVED <i>Paul J. [Signature]</i>	DATE 1/1/04
		STANDARD DRAWING 108-1

REINFORCING STEEL

ALL REINFORCING STEEL SHALL BE FREE FROM DIRT, OIL, GREASE, OR AVOIDABLE, LOOSE RUST WHEN PLACED IN CONCRETE. REINFORCING STEEL SHALL BE SECURELY HELD IN PLACE DURING THE CONCRETE POURING OPERATION. IN NO CASE SHALL REINFORCING STEEL BE DRIVEN OR FORCED INTO CONCRETE AFTER IT HAS TAKEN ITS INITIAL SET.

WATERPROOFING

THE EXTERIOR SIDE OF PIT WALLS SHALL BE WATERPROOFED WITH TWO COATS OF ONE OF THE FOLLOWING MATERIALS APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. THOROSEAL; U.S.S. CHEMICAL TARMASTIC #102; KOPPERS BITUMASTIC SUPER SERVICE BLACK; DAMCHEX; AMERCOAT #78; SEALTIGHT MEL-ROL AND MEL-PRIME PRIMER OR APPROVED EQUAL. VOIDS BETWEEN PIPE AND WALL SHALL BE GROUTED WITH A HYDRAULIC CEMENT SUCH AS WATERPLUG OR APPROVED EQUAL.

DRAIN

EACH PIT SHALL BE DRAINED BY MEANS OF A 4" DRAIN LEADING TO A GRAVEL FILLED SUMP 3'X3'X3'. THE PIT SHALL BE SLOPED TO A FLOOR DRAIN PLACED IN A CORNER OPPOSITE THE LID. THE FLOOR DRAIN CASTING SHALL HAVE A 4" OUTLET AND A RAISED OR BEEHIVE DOME GRATE SIMILAR TO WADE #1634; JOSAM #7324; OR AN APPROVED EQUAL.


PIT LIDS

PITS NOT SUBJECT TO PARKING OR TRAFFIC SHALL BE CONSTRUCTED USING BILCO J-1AL (24"X24"), JD-2AL (48"X48") AND HAVE A FACTORY DRILLED 1-3/4" HOLE IN THE TOP.

PITS CONSTRUCTED IN PARKING AREAS SHALL HAVE A GUARD POST SET IN THE GROUND AT EACH CORNER OF THE ROOF SLAB, OR HAVE THE ROOF SLAB RAISED AT LEAST 6" ABOVE GROUND LEVEL TO PREVENT PARKING ON THE PIT.

PITS SUBJECT TO HEAVY TRAFFIC LOADS SHALL BE EQUIPPED WITH LIDS AS FOLLOWS: BILCO -1AL-H-20(24"X24"), J-D-2AL-H-20 (48"X48"), JD-3AL-H-20 (48"X72").

(CONTINUED ON NEXT PAGE)

 GREATER CINCINNATI WATER WORKS 12/23/03	MATERIAL AND CONSTRUCTION SPECIFICATIONS	
	GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
	APPROVED <i>Paul Toner</i>	DATE 1/1/04
	STANDARD DRAWING 108-1A	

PIT LIDS (CONTINUED)

ALL BILCO LIDS SHALL BE EQUIPPED WITH STAINLESS STEEL HARDWARE AND MUST HAVE A 25 YEAR WARRANTY. LIDS SHALL BE CENTERED LENGTHWISE OVER THE DOMESTIC METER.

PIPES, METERS AND FITTINGS

ALL METERS SHALL BE PURCHASED FROM THE GCWW. SERVICE BRANCHES 3/4" THROUGH 2" SHALL BE SOFT ANNEALED TYPE "K" COPPER CONFORMING TO ASTM-B88, FROM THE MAIN TO THE WATER METER. ONLY COMPLETE ROLLS OF 60' OR 100' TYPE "K" COPPER MAY BE USED ON 3/4" AND 1" BRANCHES. AT NO TIME SHALL COPPER BE RUN THROUGH ANY CONDUIT. CONNECTIONS BETWEEN PIPE 3/4" OR 1" SHALL BE BY FLARED FITTING. CONNECTIONS BETWEEN PIPE 1 1/2" AND 2" SHALL BE WITH SILVER SOLDER OR FLARED FITTING. VALVES, FITTINGS, TEST TEES AND DETECTOR CHECK TRIM SHALL BE "LOW LEAD" GCWW APPROVED BRASS. SERVICE BRANCHES LARGER THAN 2" SHALL BE EITHER TYPE "K" COPPER OR DUCTILE IRON FROM THE MAIN TO THE METER SETTING OUTLET VALVE. DUCTILE IRON PIPE SHALL CONFORM TO CINCINNATI SPECIFICATION #40-110-91(CLASS 55) OR THE LATEST REVISION THEREOF AND SHALL BE INSPECTED BY THE CINCINNATI WATER WORKS ENGINEERING DIVISION.



INSULATION COUPLINGS

AN INSULATING COUPLING MUST BE INSTALLED ON THE HOUSE SIDE OF THE CORPORATION STOP ON ALL WATER SERVICE BRANCHES 3/4" THROUGH AND INCLUDING 2".

CURB BOXES/ROADWAY BOXES AND TELESCOPES

A GCWW APPROVED CURB BOX MUST BE INSTALLED OVER THE CORPORATION STOP ON ALL 3/4" AND 1" SERVICE LINE INSTALLATIONS AND SET TO ROUGH GRADE. IN THE INSTANCE WHERE A CORPORATION STOP WILL BE UNDER A PAVED AREA, A ROADWAY BOX MUST BE INSTALLED ON A 3/4" AND 1" SERVICE LINE INSTALLATION. ROADWAY BOXES MUST BE INSTALLED OVER THE CORPORATION STOP ON 1 1/2" AND 2" SERVICE LINE INSTALLATIONS AND SET TO ROUGH GRADE. (SEE E-476-M OR W-477-M FOR CURB BOX/ROADWAY BOX SPECIFICATIONS.)

(CONTINUED ON NEXT PAGE)

 CINCINNATI GREATER WATER WORKS 12/23/03	MATERIAL AND CONSTRUCTION SPECIFICATIONS	
	GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
	APPROVED 	DATE 5/12/06
	STANDARD DRAWING 108-1B	

CURB BOXES/ROADWAY BOXES AND TELESCOPES: (CONTINUED)

A VALVE BOX MUST BE INSTALLED OVER THE CORPORATION STOP ON ALL 4" AND LARGER SERVICE LINE INSTALLATIONS. (SEE E-125-M OR E-125-MX FOR VALVE BOX SPECIFICATIONS) IRON TELESCOPES MUST BE USED IN TRAFFIC AREAS. PLASTIC TELESCOPES MAY BE INSTALLED IN GRASS AREAS. CONCRETE BRICKS MUST BE USED UNDER THE IRON TELESCOPE AND IRON VALVE BOX. OAK BLOCKS MAY BE USED UNDER THE PLASTIC TELESCOPE AND PLASTIC VALVE BOX.

REMOVABLE METAL LADDER

THE REMOVABLE METAL LADDER SHALL BE AN APPROVED OSHA TYPE 1 INDUSTRIAL-HEAVY 250 POUND RATED LADDER THAT MEETS THE AMERICAN NATIONAL STANDARD SAFETY CODE FOR PORTABLE METAL LADDERS. ANSI A 14.2 - (LATEST REVISION). THE LADDER MUST REACH FROM THE PIT FLOOR AND EXTEND INTO THE PIT OPENING.

METER BOX ENCLOSURE/OUTSIDE SETTING


ALL WATER METER SETTINGS (5/8" - 2") IN AN OUTSIDE METER BOX MUST BE INSTALLED WITH A SONOCO POLYMER METER BOX ENCLOSURE OR AN APPROVED EQUAL. FORD METER BOX METAL ENCLOSURES (CASTING) AND ARMORCAST LIDS OR AN APPROVED EQUAL ARE INDICATED ON SPECIFIC STANDARD DRAWINGS. SETTING MUST BE CENTERED IN BOX, 15" TO 19" BELOW GRADE.

HYDROSTATIC TESTING OF SERVICE BRANCHES

BRANCHES MORE THAN 300 FEET IN LENGTH BETWEEN CURB STOP AND METER SETTING MUST BE HYDROSTATICALLY TESTED. BRANCHES LESS THAN 300 FEET WILL BE INSPECTED IN ACCORDANCE WITH STANDARD INSPECTION PROCEDURES. THE HYDROSTATIC TEST, AS WELL AS THE STANDARD BRANCH INSPECTION, MUST BE WITNESSED BY A GCWW REPRESENTATIVE. THE HYDROSTATIC TESTING SHALL BE AT A PRESSURE 50 PSI GREATER THAN THE EXISTING STATIC PRESSURE IN THE WATER MAIN, MAINTAINED FOR 5 MINUTES, WITH NO PRESSURE LOSS.

NO BACKFILL OF ANY PORTION OF THE LINE MAY OCCUR UNTIL THE INSPECTION AND HYDROSTATIC TESTING IS COMPLETE. IT MAY BE NECESSARY, AT TIMES, TO BACKFILL A PORTION OF THE TRENCH BEFORE THE ENTIRE BRANCH IS INSTALLED.

(CONTINUED ON NEXT PAGE)

 WATER WORKS 12/23/03	MATERIAL AND CONSTRUCTION SPECIFICATIONS	
	GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
	APPROVED <i>Paul Turner</i>	DATE 1/1/04
		STANDARD DRAWING 108-1C

HYDROSTATIC TESTING OF SERVICE BRANCHES (CONTINUED)

THE GCWW INSPECTOR ON SITE MAY AUTHORIZE THE BACKFILL AFTER INSPECTING THE PORTION OF THE BRANCH TO BE COVERED. IN SUCH CASES, THE HYDROSTATIC TEST SHALL BE COMPLETED ON EACH SECTION BEFORE BACKFILLING.

THE FOLLOWING PROCEDURE WILL BE USED FOR THE TEST:

A) THE SERVICE SHALL BE INSTALLED IN ACCORDANCE WITH GCWW REGULATIONS. IT SHALL BE THE CERTIFIED PERSON'S RESPONSIBILITY TO CALL THE GCWW TO ARRANGE FOR AN INSPECTION OF THE BRANCH. AN INSPECTION WILL BE MADE BY THE GCWW INSPECTOR AT THE TIME OF THE HYDROSTATIC TEST.

B) AFTER COMPLETING INSTALLATION, THE BRANCH SHALL BE FILLED WITH WATER AT WATER MAIN PRESSURE. THE CERTIFIED PERSON WILL CONNECT THE HYDROSTATIC TEST EQUIPMENT TO THE LINE. A PRESSURE GAUGE APPROPRIATE FOR THE PRESSURE BEING MEASURED, AND A BALL VALVE, MUST BE INSTALLED AT THE OUTLET END OF THE LINE. AFTER THE EQUIPMENT IS CONNECTED, THE CURB STOP WILL BE SHUT OFF, ISOLATING THE PRESSURE IN THE LINE. THE CERTIFIED PERSON WILL THEN INCREASE THE LINE PRESSURE 50 PSI GREATER THAN THE NORMAL STATIC PRESSURE AT THE WATER MAIN. THE BALL VALVE WILL THEN BE CLOSED SO AS TO ISOLATE THE LINE FROM THE HYDROSTATIC TEST EQUIPMENT. THE GCWW INSPECTOR WILL MONITOR THE PRESSURE GAUGE FOR A PERIOD OF 5 MINUTES. THERE SHALL BE NO ALLOWABLE PRESSURE LOSS DURING THIS PERIOD.



MATERIAL AND CONSTRUCTION SPECIFICATIONS	
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
APPROVED <i>Paul Toner</i>	DATE 1/1/04
STANDARD DRAWING 108-1D	


AMR SYSTEM INSTALLATIONS ON NEW SERVICES:

METER PITS OR FROST PROOF BOXES SHALL BE SET AS CLOSE AS PRACTICAL TO THE PROPERTY LINE. IN THE INSTANCE WHERE A METER IS TO BE INSTALLED IN A FROST PROOF BOX, THE APPROPRIATE FORD METER BOX ENCLOSURE AND COVER MUST BE INSTALLED. SEE SPECIFIC DRAWING PERTAINING TO METER SIZE. OUTER LIDS MUST BE ARMORCAST A6-449 OR 459 DEPENDING ON METER SIZE.

GCWW PERSONNEL OR AUTHORIZED AGENT WILL INSTALL 5/8" THROUGH 1" METERS, WIRE AND METER INTERFACE UNIT IN FORD METER BOX SETTINGS. GCWW PERSONNEL OR AUTHORIZED AGENT WILL INSTALL ALL MIU'S.

IN THE UNUSUAL EVENT THAT A METER IS INSTALLED INSIDE A BUILDING, A HOLE MUST BE DRILLED THROUGH THE FOUNDATION OR WALL 36" TO 60" ABOVE THE FINISHED GRADE. MIU WILL BE INSTALLED AT THIS LOCATION. 3/4" CONDUIT MUST BE RUN FROM THE METER SETTING TO THE HOLE. 5/8" - 2" METERS REQUIRE A 1/4" HOLE WHILE 3" OR LARGER METERS REQUIRE A 3/4" HOLE. WIRE MUST BE RUN THROUGH THE CONDUIT WITH A MINIMUM OF 1 FOOT OF EXCESS WIRE SECURED ON THE INLET VALVE AND A MINIMUM OF 1 FOOT OF EXCESS WIRE OUTSIDE OF THE FOUNDATION OR WALL. AFTER RUNNING THE WIRE, THE HOLE MUST BE SEALED WITH FLEXIBLE SEALANT.

GCWW PERSONNEL OR AUTHORIZED AGENT WILL CONNECT ALL CABLE.

 GREATER CINCINNATI WATER WORKS 12/23/03	AUTOMATIC METER READING SYSTEM (AMR) STANDARDS	
	GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
	APPROVED <i>Paul Jones</i>	DATE 1/1/04
	STANDARD DRAWING 108-1E	

BACKFLOW


ALL BACKFLOW DEVICES MUST BE NO SMALLER THAN THE SIZE OF THE METER. ALL BACKFLOW DEVICES MUST BE TESTED AT THE TIME OF INSTALLATION AND ONCE A YEAR THEREAFTER.

ABOVE GROUND BACKFLOW DEVICE ENCLOSURE

WHEN FROST PROOF PROTECTION IS NECESSARY, A HOTBOX OR APPROVED EQUAL MUST BE USED. THE DEPTH OF WATER INSIDE THE ENCLOSURE SHALL NOT EXCEED 6" DURING FULL FLOW OF THE BACKFLOW RELIEF VALVE DISCHARGE, NOR SHALL WATER STAND TO ANY DEPTH GREATER THAN 1/4" AFTER COMPLETION OF FULL FLOW.

ALL TEST COCKS, VALVE HANDLES OR HAND WHEELS SHALL BE WITHIN A MAXIMUM OF 24" OF ACCESS OPENING.

HINGED ACCESS PANELS SHALL BE SECURELY RESTRAINED IN THE OPEN AND CLOSED POSITIONS SO AS TO AVOID INJURY. HINGED ACCESS TO THE BACKFLOW PREVENTER SHALL BE LOCKABLE.

	BACKFLOW DEVICE SPECIFICATIONS		
	GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION		
	APPROVED <i>Paul Turner</i>	DATE 1/1/04	STANDARD DRAWING 108-1F

METER SIZE (IN INCHES)	METER TYPE	LAYING LENGTH (IN INCHES)
5/8	POSITIVE DISPLACEMENT	7 1/2
3/4	POSITIVE DISPLACEMENT	9
1	POSITIVE DISPLACEMENT	10 3/4
1 1/2	POSITIVE DISPLACEMENT	13
2	POSITIVE DISPLACEMENT	17
2	TURBINE	17
3	COMPOUND	24
3	TURBINE	24
4	COMPOUND	29
4	TURBINE	29
4	FIRE PROTECTION ASSEMBLY	33
6	COMPOUND	36
6	TURBINE	36
6	FIRE PROTECTION ASSEMBLY	45
8	TURBINE	42
8	FIRE PROTECTION ASSEMBLY	53
10	TURBINE	48
10	FIRE PROTECTION ASSEMBLY	68
12	TURBINE	68
16	TURBINE	68
20	TURBINE	68

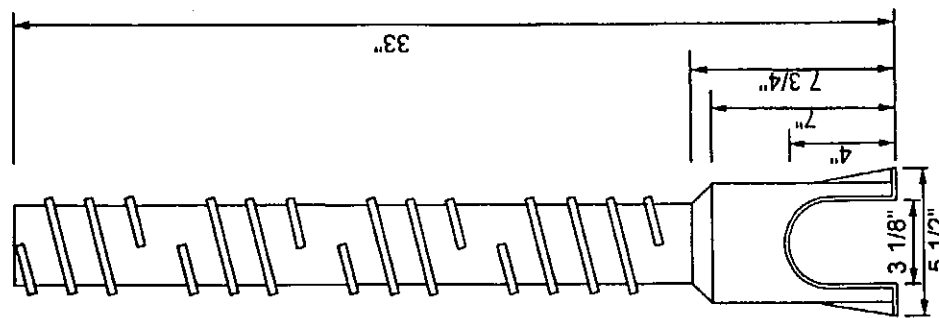
LAYING LENGTH INCLUDES STRAINER AND SPACER

WATER METER LAYING LENGTHS

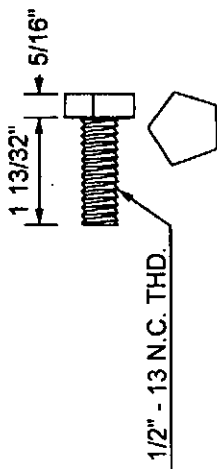
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED: *Paul Turner*
DATE: 1/1/04
STANDARD DRAWING: 108-1G



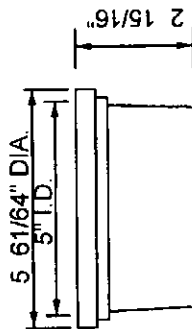
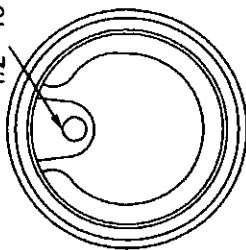


**BOTTOM
(PLASTIC)**

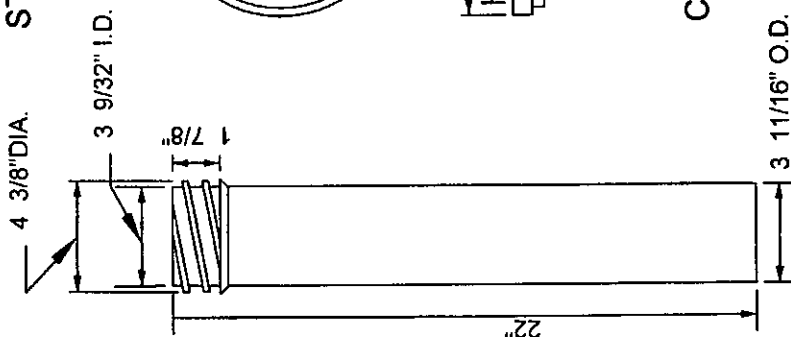


**STANDARD PENTAGON
HEAD BRASS BOLT**

1/2" - 13" N.C. THD.



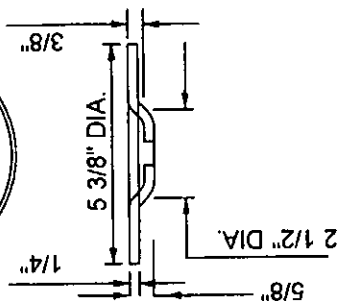
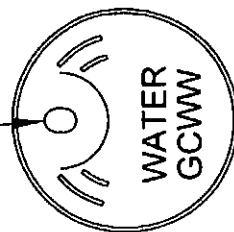
CAST IRON RING



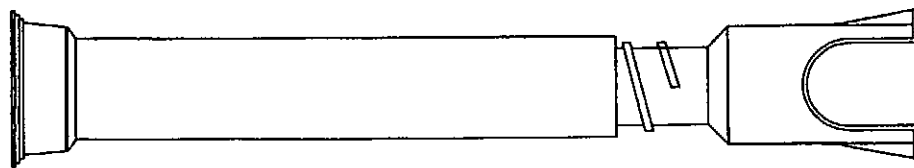
TOP

(THREAD ELIMINATED
ON SLIP STYLE)
(PLASTIC)

5/8" X 7/8" SLOT



CAST IRON LID



**COMPLETE
ASSEMBLY**



CURB BOX

CAST IRON LID & RING AND PLASTIC TOP & BOTTOM

GREATER CINCINNATI WATER WORKS

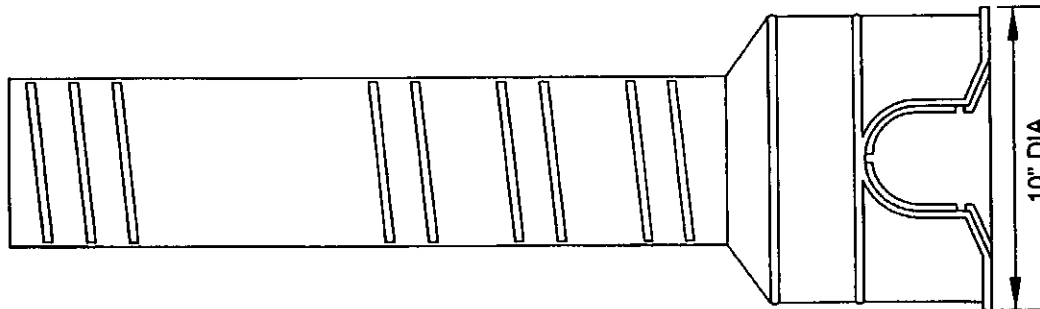
COMMERCIAL SERVICES DIVISION

APPROVED
Paul Tom

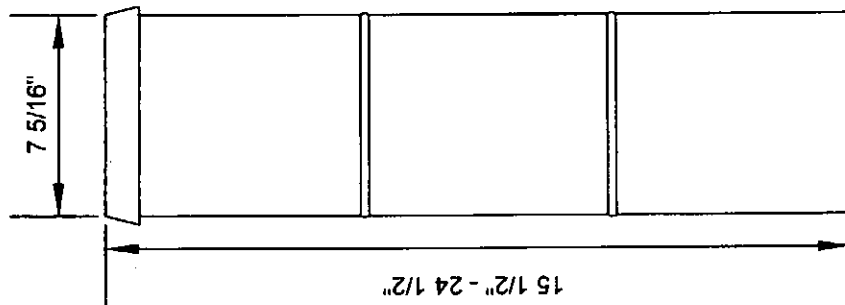
DATE 1/1/04

STANDARD DRAWING

108-2

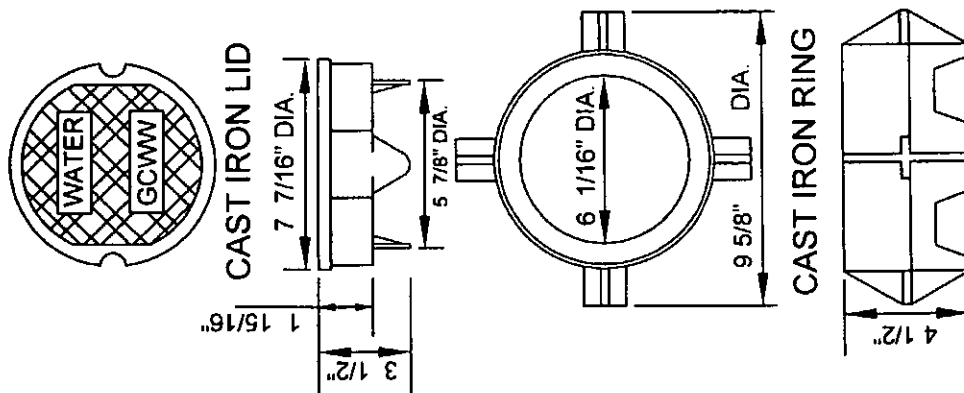


BOTTOM



TOP

(THREAD ELIMINATED
ON SLIP STYLE)



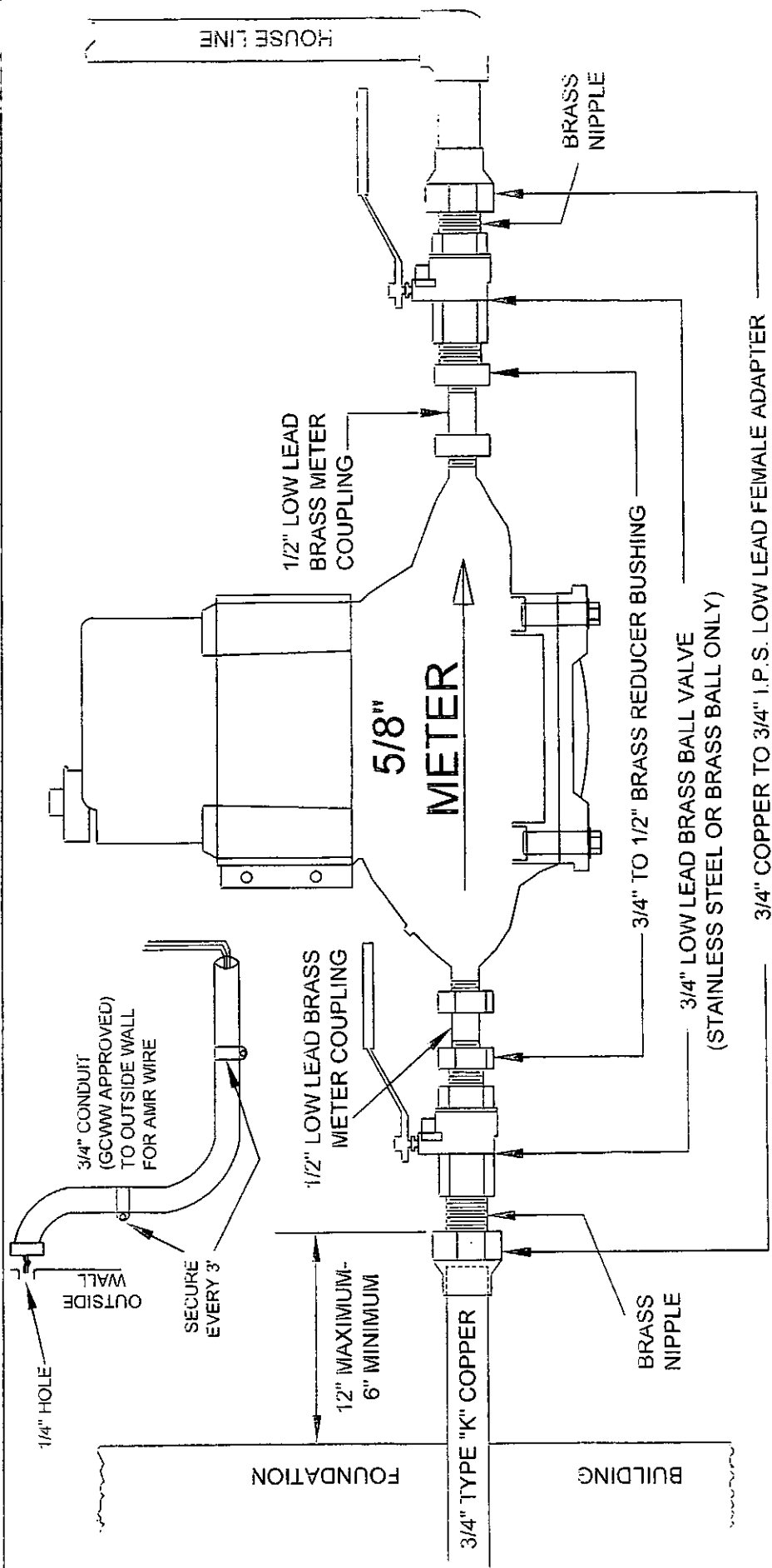
ROADWAY BOX

CAST IRON LID & RING AND PLASTIC TOP & BOTTOM

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION


APPROVED *Paul J. Jones* DATE 1/1/04 STANDARD DRAWING
108-2A

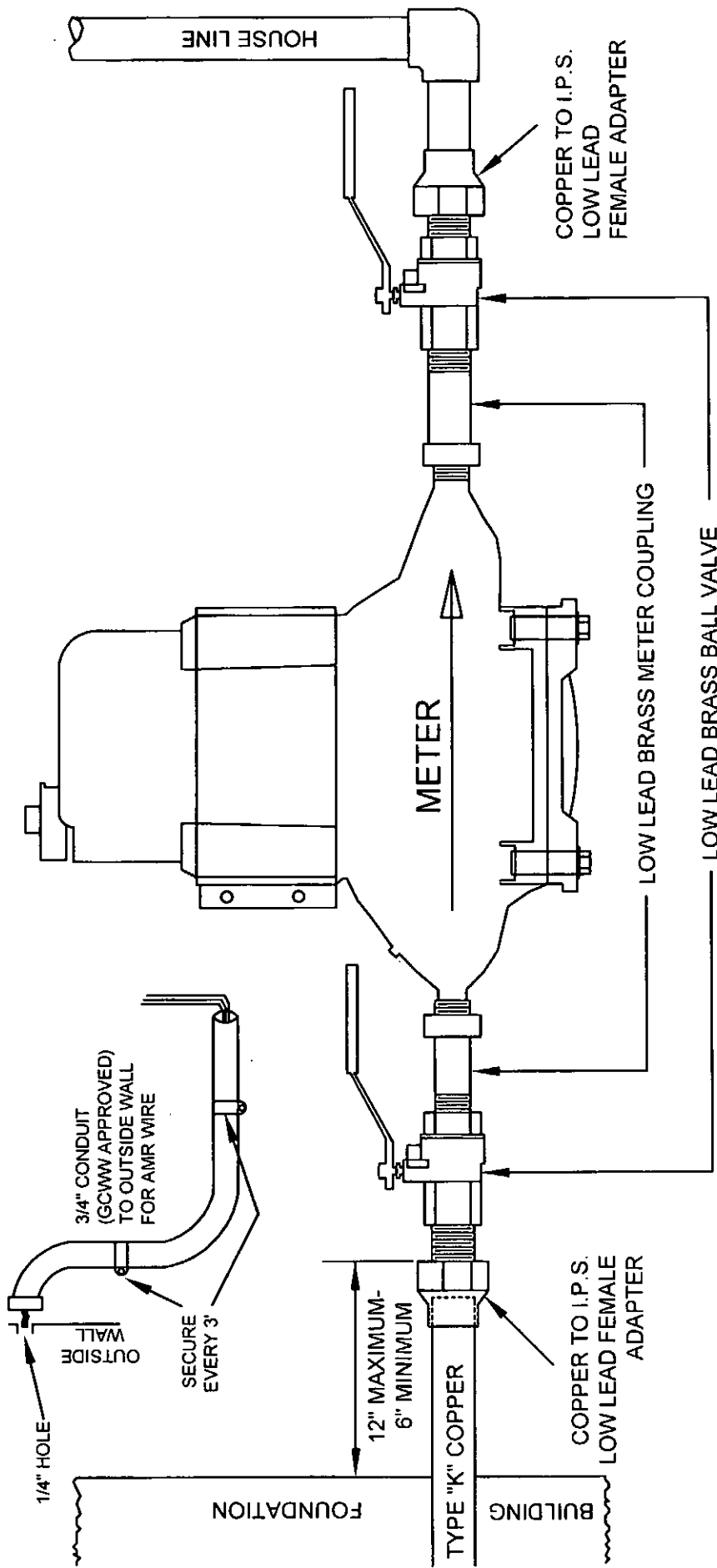




DETAILS

- A) NO METER SHALL BE SET MORE THAN 36" NOR LESS THAN 12" FROM THE FLOOR. METER MUST BE INSTALLED HORIZONTALLY.
- B) LOW LEAD BRASS BALL VALVES TO BE 150 LBS. S.W.P. WITH 3" HANDLES, STAINLESS STEEL OR BRASS BALL, BUNA-N-SEATS, CONFORMING TO ASTM B62 AND NSF 61.
- C) LAYING LENGTH OF 5/8" METER IS 7 1/2".
- D) METER MUST BE SEALED BY WATER WORKS PERSONNEL OR AUTHORIZED AGENT.
- E) ANY ELECTRICAL GROUND WIRE ON THE SERVICE LINE MUST BE LOCATED BETWEEN THE INLET VALVE AND THE STREET.
- F) THIS SETTING IS REQUIRED WHEN AN INSIDE METER REDUCTION IS APPROVED, OR BRANCH REPLACEMENT OCCURS.
- G) A 1/4" HOLE MUST BE DRILLED THROUGH THE FOUNDATION/WALL AND AFTER RUNNING WIRE, SEALED WITH A FLEXIBLE SEALANT.
- H) THE 3/4" CONDUIT SHALL BEGIN WITHIN 6" OF THE METER AND END WITHIN 6" OF THE FOUNDATION.
- I) WIRE SHALL BE SUPPLIED BY THE GCWW BUT INSTALLED BY THE CONTRACTOR. THERE MUST BE 1 FOOT OF EXCESS WIRE AT THE INLET VALVE AND 1 FOOT OF EXCESS WIRE OUTSIDE OF THE FOUNDATION.
- J) SEE 108-1B FOR DETAILS.

5/8" AMR INSIDE METER COUPLING SETTING		APPROVED <i>[Signature]</i> DATE 5-12-06	STANDARD DRAWING 108-3
 GREATER CINCINNATI WATER WORKS 12/23/03		GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	



DETAILS

- A) NO METER SHALL BE SET MORE THAN 36" NOR LESS THAN 12" FROM THE FLOOR. METER MUST BE INSTALLED HORIZONTALLY.
- B) LOW LEAD BRASS BALL VALVES TO BE 150 LBS. SWP WITH 3" HANDLES, STAINLESS STEEL OR BRASS BALL, BUNA-N-SEATS, CONFORMING TO ASTM B82 AND NSF 61. VALVES MUST BE THE SAME SIZE AS THE BRANCH.
- C) LAYING LENGTH OF METERS; 3/4" METER IS 9", 1" METER IS 10 3/4".
- D) METER MUST BE SEALED BY WATER WORKS PERSONNEL OR AUTHORIZED AGENT.
- E) ANY ELECTRICAL GROUND WIRE ON THE SERVICE LINE MUST BE LOCATED BETWEEN THE INLET VALVE AND THE STREET.
- F) THIS SETTING IS REQUIRED WHEN AN INSIDE METER REDUCTION IS APPROVED OR BRANCH REPLACEMENT OCCURS.
- G) A 1/4" HOLE MUST BE DRILLED THROUGH THE FOUNDATION/WALL AND AFTER RUNNING WIRE, SEALED WITH A FLEXIBLE SEALANT.

- H) A 3/4" CONDUIT SHALL BEGIN WITHIN 6" OF THE METER AND END WITHIN 6" OF THE FOUNDATION/WALL.
- I) WIRE SHALL BE SUPPLIED BY THE GCWW BUT INSTALLED BY THE CONTRACTOR. THERE MUST BE 1' OF EXCESS WIRE AT THE INLET VALVE AND 1' OF EXCESS WIRE OUTSIDE OF THE FOUNDATION/WALL.
- J) SEE 108-1B FOR DETAILS.

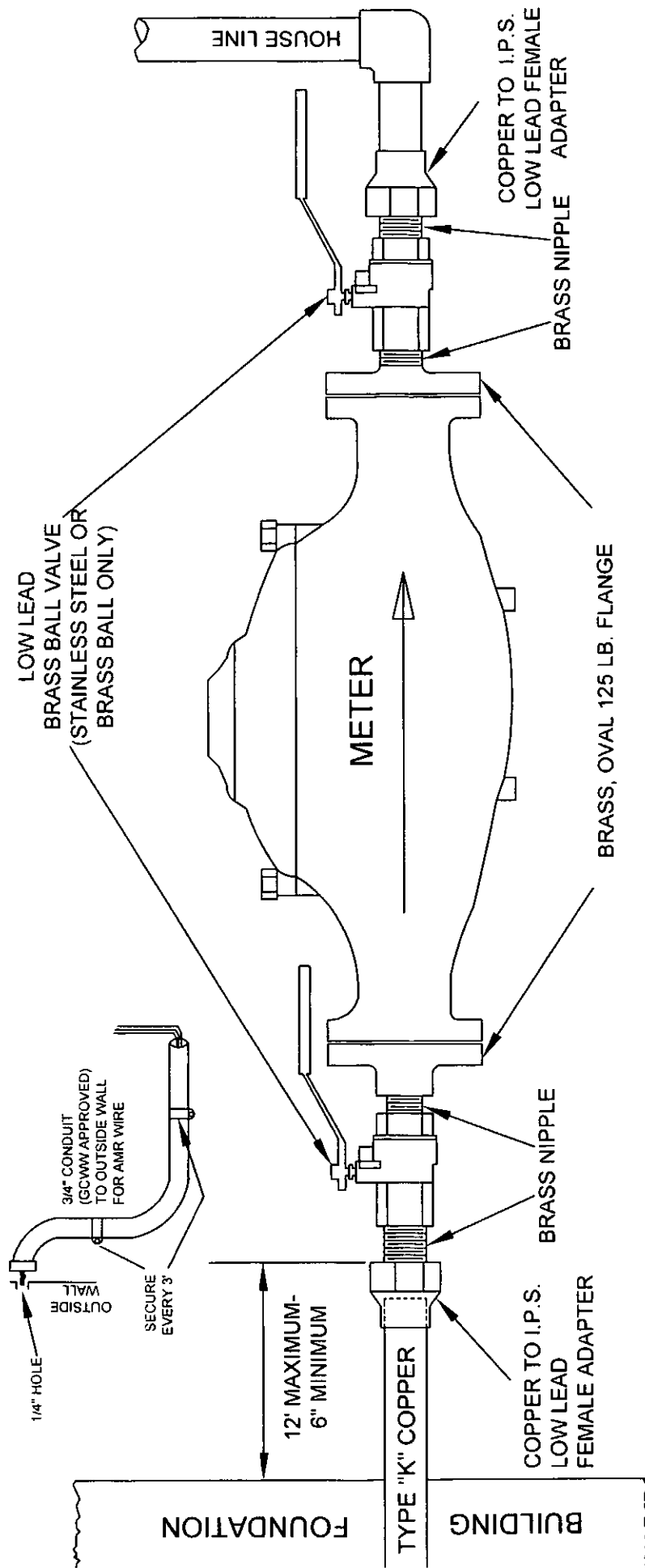


3/4" AND 1" AMR

INSIDE METER COUPLING SETTING

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED
DATE 5-12-06
STANDARD DRAWING
108-3A



DETAILS

- NO METER SHALL BE SET MORE THAN 36" NOR LESS THAN 12" FROM THE FLOOR. METER MUST BE INSTALLED HORIZONTALLY.
- LOW LEAD BRASS BALL VALVES TO BE 150 LBS. S.W.P. WITH 3" HANDLES, STAINLESS STEEL OR BRASS BALL, BUNA-N-SEATS, CONFORMING TO ASTM B62 NAD NSF 61.
- LAYING LENGTH OF METERS; 1 1/2" METER IS 13", 2" METER IS 17".
- METER MUST BE SEALED BY WATER WORKS PERSONNEL OR AUTHORIZED AGENT.
- ANY ELECTRICAL GROUND WIRE ON THE SERVICE LINE MUST BE LOCATED BETWEEN THE INLET VALVE AND THE STREET.
- IT IS REQUIRED TO USE THIS SETTING WHEN AN INSIDE METER REDUCTION IS APPROVED, OR BRANCH REPLACEMENT OCCURS, PROVIDED BALL VALVES (AS SPECIFIED BELOW) ARE USED.
- A ROADWAY BOX MUST BE INSTALLED OVER THE CURB STOP.
- WHEN A METER SMALLER THAN THE BRANCH SIZE IS USED, THE PIPE REDUCER SHALL BE LOCATED WITHIN 4" OF THE INLET VALVE.

- WIRE SHALL BE SUPPLIED BY THE GCWW BUT INSTALLED BY THE CONTRACTOR. THERE MUST BE 1' OF EXCESS WIRE AT THE INLET VALVE AND 1' OF EXCESS WIRE OUTSIDE OF THE FOUNDATION.
- CONDUIT SHALL EXTEND WITHIN 6" OF METER AND OUTSIDE WALL.
- A 1/4" HOLE MUST BE DRILLED THROUGH THE WALL AND FILLED WITH FLEXIBLE SEALANT.
- SEE 108-1B FOR DETAILS.

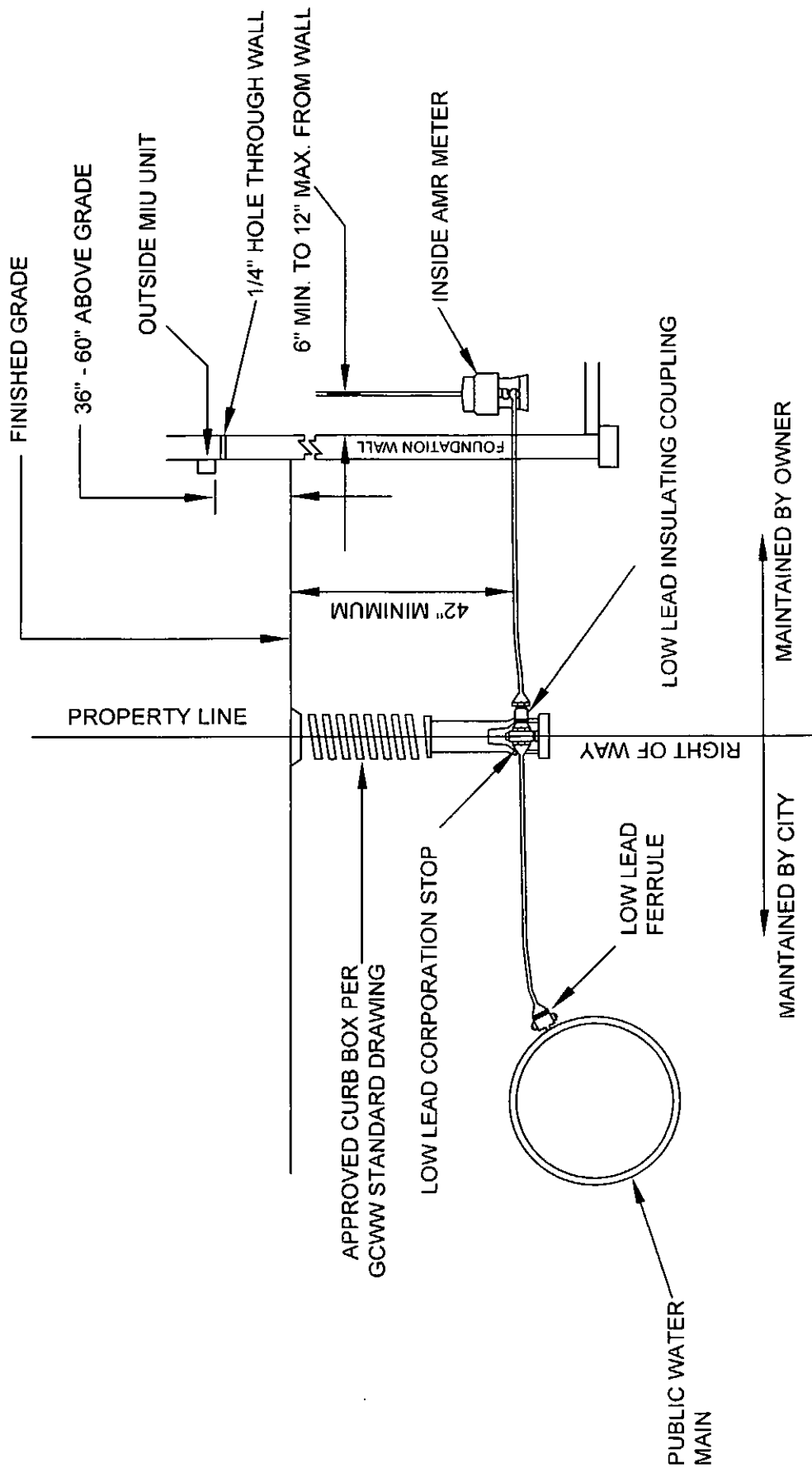


1 1/2" AND 2" AMR INSIDE METER FLANGED SETTING

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED
DATE 5-12-06
STANDARD DRAWING

108-3B



DETAILS

- A) SEE 108-1B FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-3 FOR METER COUPLING SETTING DETAILS FOR 5/8" METERS.
- C) SEE 108-3A FOR METER COUPLING SETTING DETAILS FOR 3/4" & 1" METERS.
- E) SEE 108-3B FOR METER COUPLING SETTING DETAILS FOR 1 1/2" & 2" METERS.
- F) INSULATING COUPLING TO BE INSTALLED ON HOUSE SIDE OF CORPORATION STOP.
- G) A 1/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION OR WALL AND FILLED WITH FLEXIBLE SEALANT.



INSIDE AMR 5/8" - 2" METER SETTING

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

DATE 5-12-06
STANDARD DRAWING

108-4

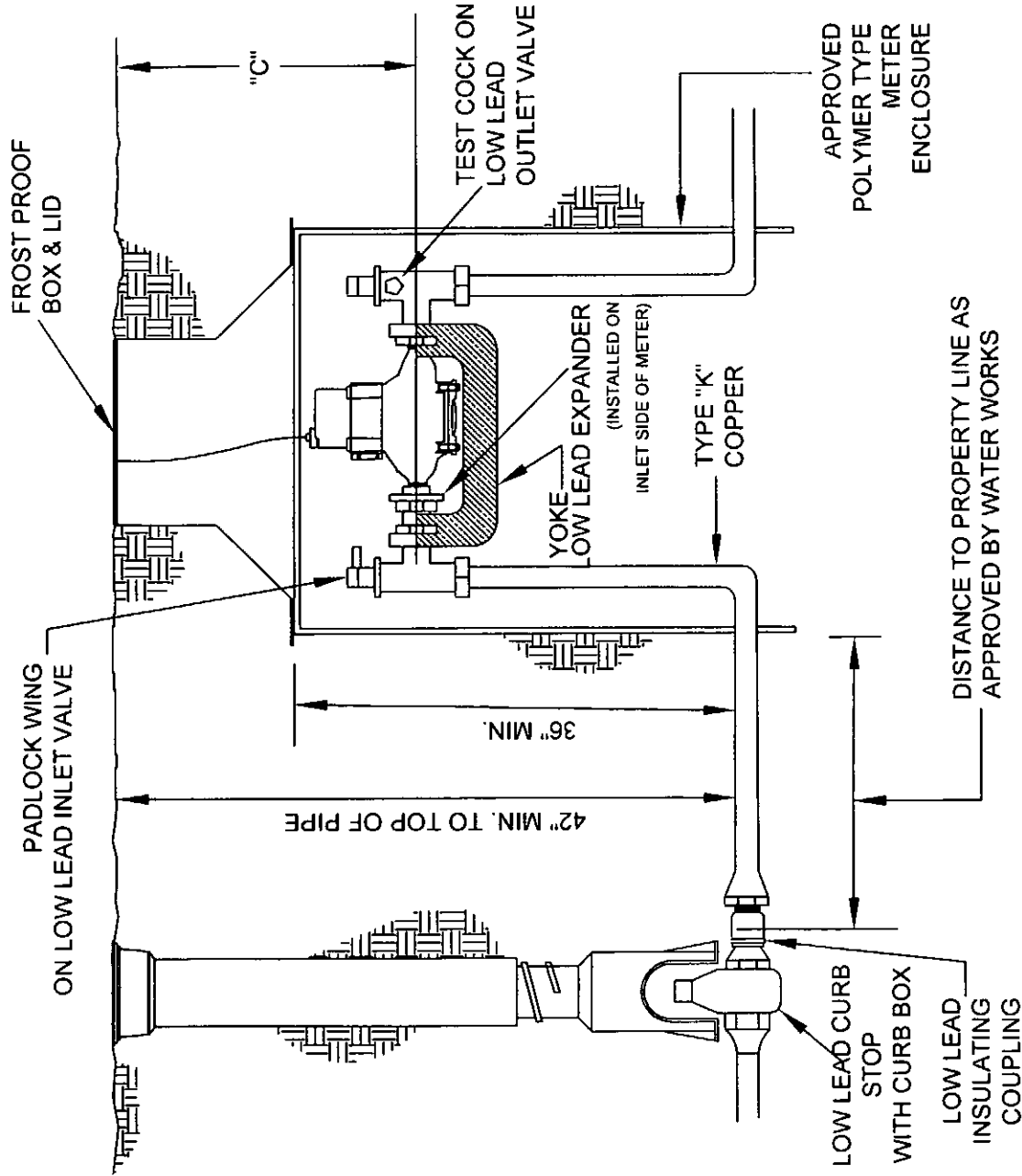
APPROVED
[Signature]

MAINTAINED BY OWNER

MAINTAINED BY CITY

DETAILS

- SEE 108-1B & 108-1C FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- METER TO BE SET AT RIGHT ANGLES TO RIGHT OF WAY AND MUST BE LEVEL AND CENTERED WITH YOKE VALVES UPRIGHT. METER TO BE 15" - 19" BELOW FINISHED GRADE.
- FROST PROOF SETTING IN AN EMBANKMENT MAY REQUIRE A RETAINING WALL.
- WHEN A METER SMALLER THAN THE BRANCH SIZE IS USED, AN AY McDONALD 74602Y REDUCING YOKE VALVE SHALL BE INSTALLED. OR IF A SILVER SOLDER REDUCING FITTING IS USED, IT SHALL BE LOCATED ON THE RISER WITHIN 4" OF THE INLET VALVE.
- METER ENCLOSURE COVER TO BE FORD METER BOX #FW-3 OR AN AY McDONALD 74-M3W. THE OUTER LID MUST BE ARMORCAST A6-449 GCWW LID OR AN APPROVED EQUAL.
- HEAVY DUTY OUTER LIDS ARE REQUIRED IN PAVED OR TRAVELED AREAS.
- STOP BOX OR ROADWAY BOX MUST BE INSTALLED.



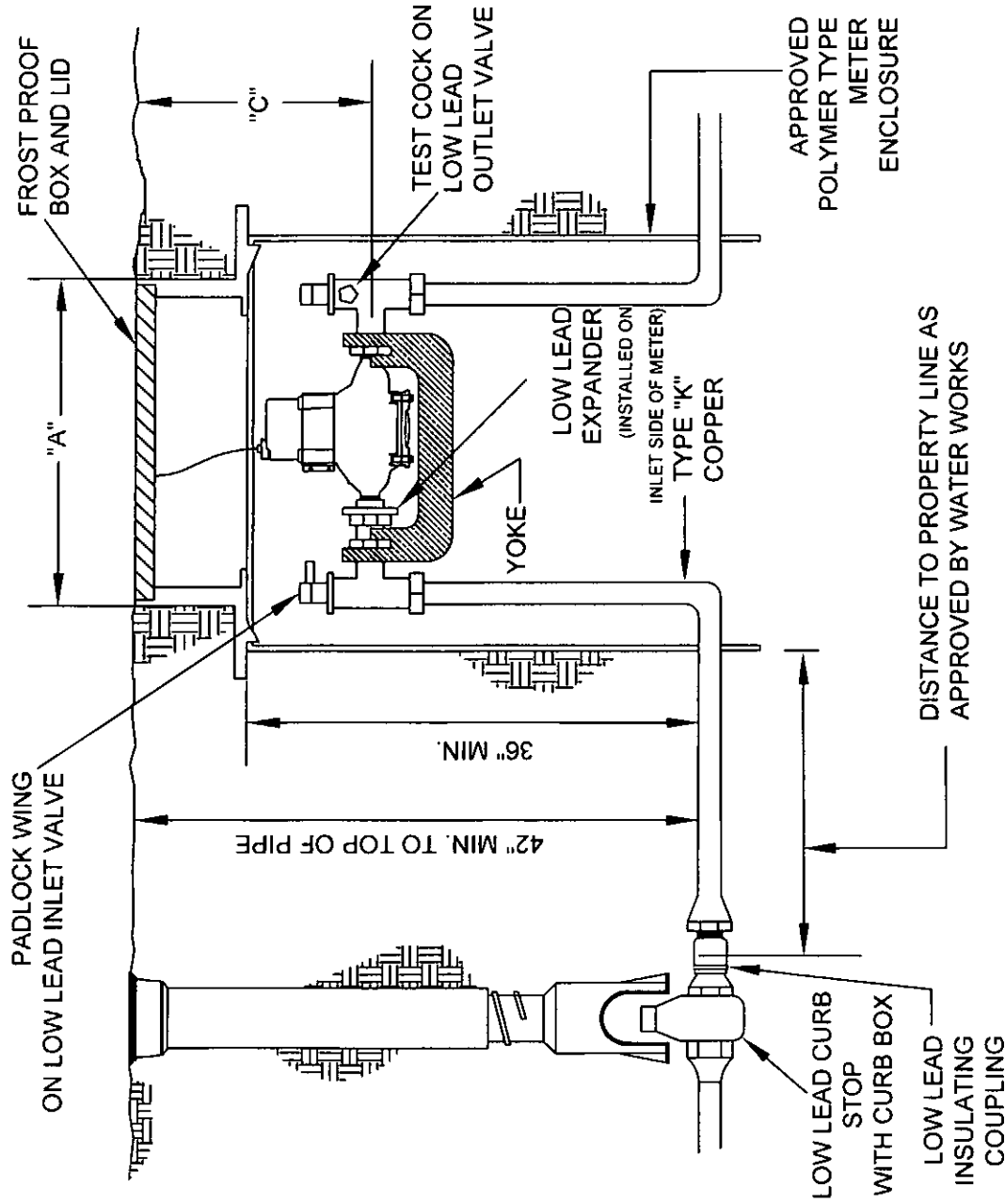
METER SIZE	METER ENCLOSURE DIAMETER	"C"
5/8"	20"	15" TO 19"
3/4"	20"	15" TO 19"



OUTSIDE AMR METER BOX SETTING
FOR 5/8" & 3/4" METERS

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED: *[Signature]*
DATE: 5-12-06
STANDARD DRAWING: **108-5**



DETAILS

- SEE 108-1B & 108-1C FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- METER TO BE SET AT RIGHT ANGLES TO RIGHT OF WAY AND MUST BE LEVEL AND CENTERED WITH YOKE VALVES UPRIGHT. METER TO BE 15" - 19" BELOW FINISHED GRADE.
- FROST PROOF SETTING IN AN EMBANKMENT MAY REQUIRE A RETAINING WALL.
- WHEN A METER SMALLER THAN THE BRANCH SIZE IS USED, AN AY McDONALD 74602Y REDUCING YOKE VALVE SHALL BE INSTALLED. OR IF A SILVER SOLDER REDUCING FITTING IS USED, IT SHALL BE LOCATED ON THE RISER WITHIN 4" OF THE INLET VALVE.
- METER ENCLOSURE COVER TO BE FORD METER BOX #24 MONITOR COVER OR AN AY McDONALD 74-M3W. THE OUTER LID MUST BE ARMORCAST A6-459 GCWW LID OR AN APPROVED EQUAL.
- HEAVY DUTY OUTER LIDS ARE REQUIRED IN PAVED OR TRAVELED AREAS.
- STOP BOX OR ROADWAY BOX MUST BE INSTALLED.

OUTSIDE AMR METER BOX SETTING FOR 1" METERS

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED: *[Signature]*
DATE: 5-12-06

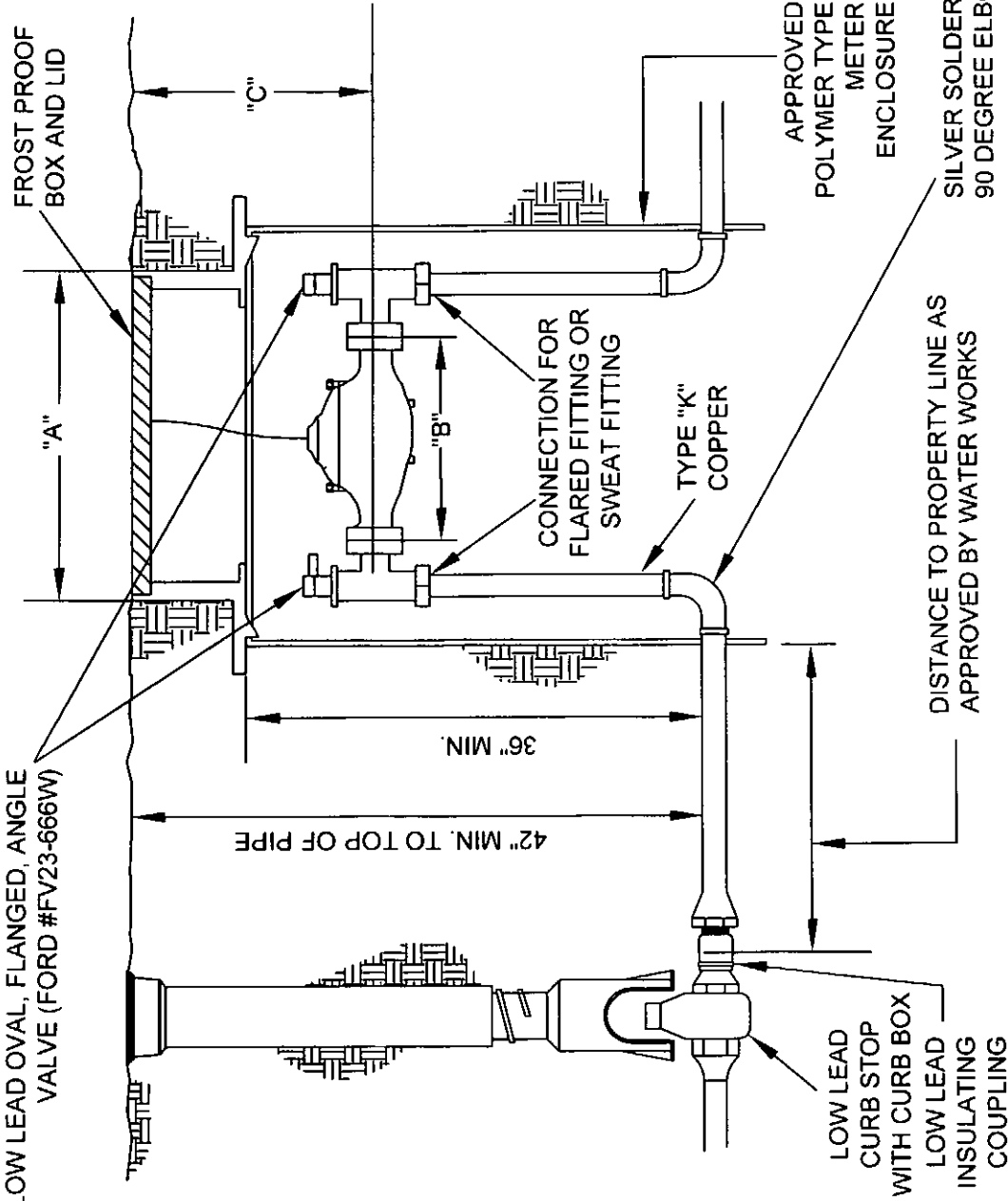
STANDARD DRAWING
108-5A

METER SIZE	METER ENCLOSURE DIAMETER	"A"	"C"
1"	24"	20 3/4"	15" TO 19"



DISTANCE TO PROPERTY LINE AS
APPROVED BY WATER WORKS

LOW LEAD OVAL, FLANGED, ANGLE
VALVE (FORD #FV23-666W)



DETAILS

- SEE 108-1B & 108-1C FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- METER TO BE SET AT RIGHT ANGLES TO RIGHT OF WAY AND MUST BE LEVEL AND CENTERED WITH VALVES UPRIGHT. METER TO BE 15" - 19" BELOW FINISHED GRADE.
- FROST PROOF SETTING IN AN EMBANKMENT MAY REQUIRE A RETAINING WALL.
- WHEN A METER SMALLER THAN THE BRANCH SIZE IS USED, AN AY McDONALD 74602Y REDUCING YOKE VALVE SHALL BE INSTALLED. OR IF A SILVER SOLDER REDUCING FITTING IS USED, IT SHALL BE LOCATED ON THE RISER WITHIN 4" OF THE INLET VALVE.
- METER ENCLOSURE COVER TO BE FORD METER BOX #24 MONITOR COVER OR AN AY McDONALD 74-M3W. THE OUTER LID MUST BE ARMORCAST A6-459 GCWW LID OR AN APPROVED EQUAL.
- HEAVY DUTY OUTER LIDS ARE REQUIRED IN PAVED OR TRAVELED AREAS.
- STOP BOX OR ROADWAY BOX MUST BE INSTALLED.

OUTSIDE AMR METER BOX SETTING
FOR 1 1/2" AND 2" METERS

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

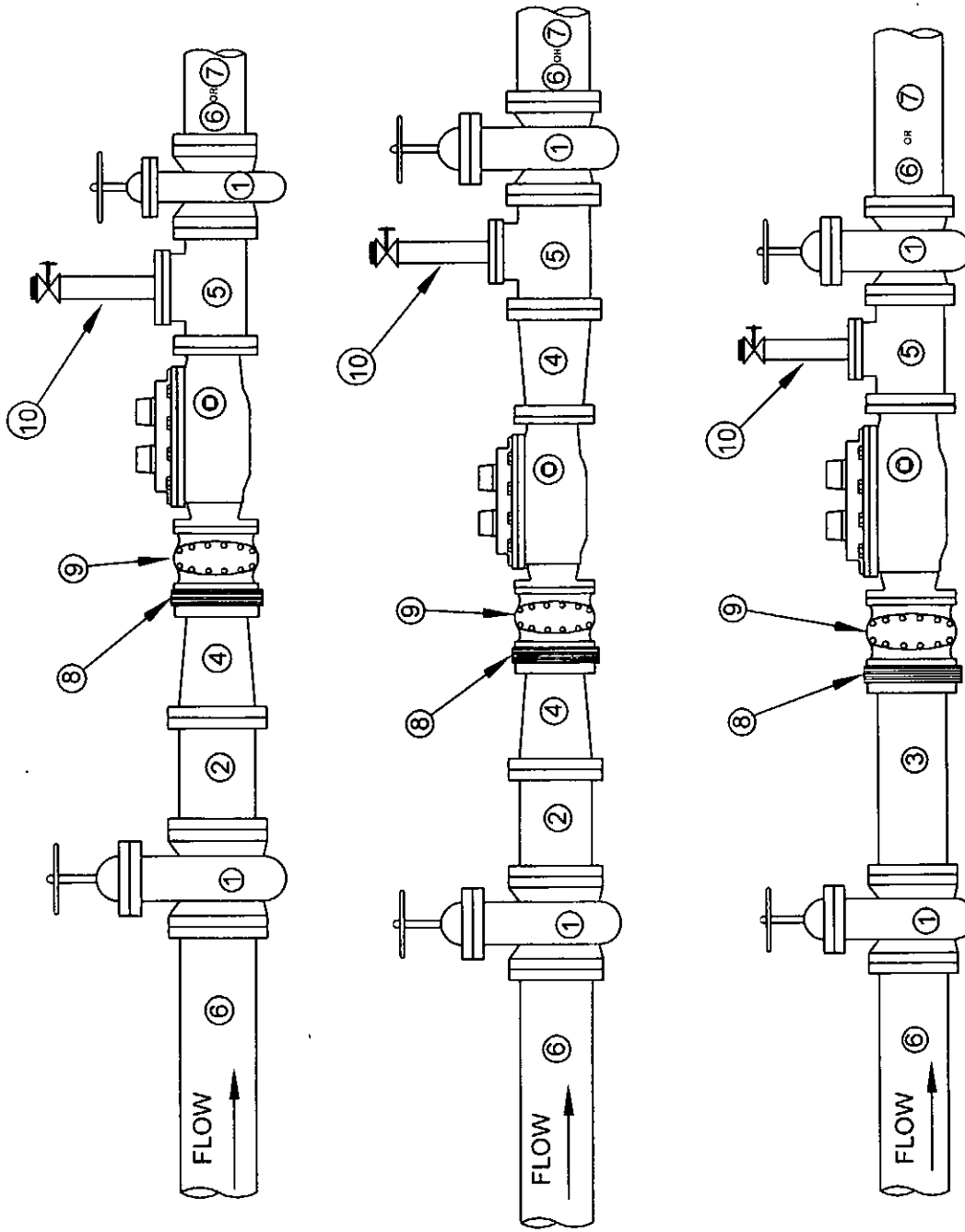
APPROVED
DATE 5-12-06
STANDARD DRAWING
108-5B

METER SIZE	METER ENCLOSURE DIAMETER	"A"	"B"	"C"
1 1/2"	24"	20 3/4"	13"	15" TO 19"
2"	30"	20 3/4"	17"	15" TO 19"

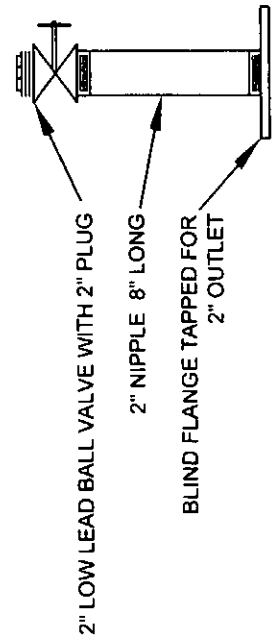


DETAILS:

- 1) OS & Y FLANGED GATE VALVE WITH WHEEL OPERATOR. INLET VALVE MUST BE ANCHORED THROUGH WALL.
- 2) FLANGED SPOOL 6" LONG WITH 1/2" TAPPED OUTLET
- 3) FLANGED SPOOL 12" LONG WITH 1/2" TAPPED OUTLET
- 4) FLANGED REDUCING SPOOL
- 5) FLANGED TEST TEE
- 6) FLANGED BY PLAIN END ADAPTER 3' OR 6' LONG
- 7) FLANGED BY MECHANICAL JOINT ADAPTER, OPTIONAL
- 8) SPACER (PROVIDED WITH METER) MUST BE INSTALLED SIDEWAYS
- 9) STRAINER (PROVIDED WITH METER) MUST BE INSTALLED SIDEWAYS.
- 10) TEST TEE (SEE DETAIL)
- 11) STAINLESS STEEL BOLTS, WASHERS AND NUTS MUST BE USED FOR ALL CONNECTIONS IN METER SETTING



TEST TEE DETAIL

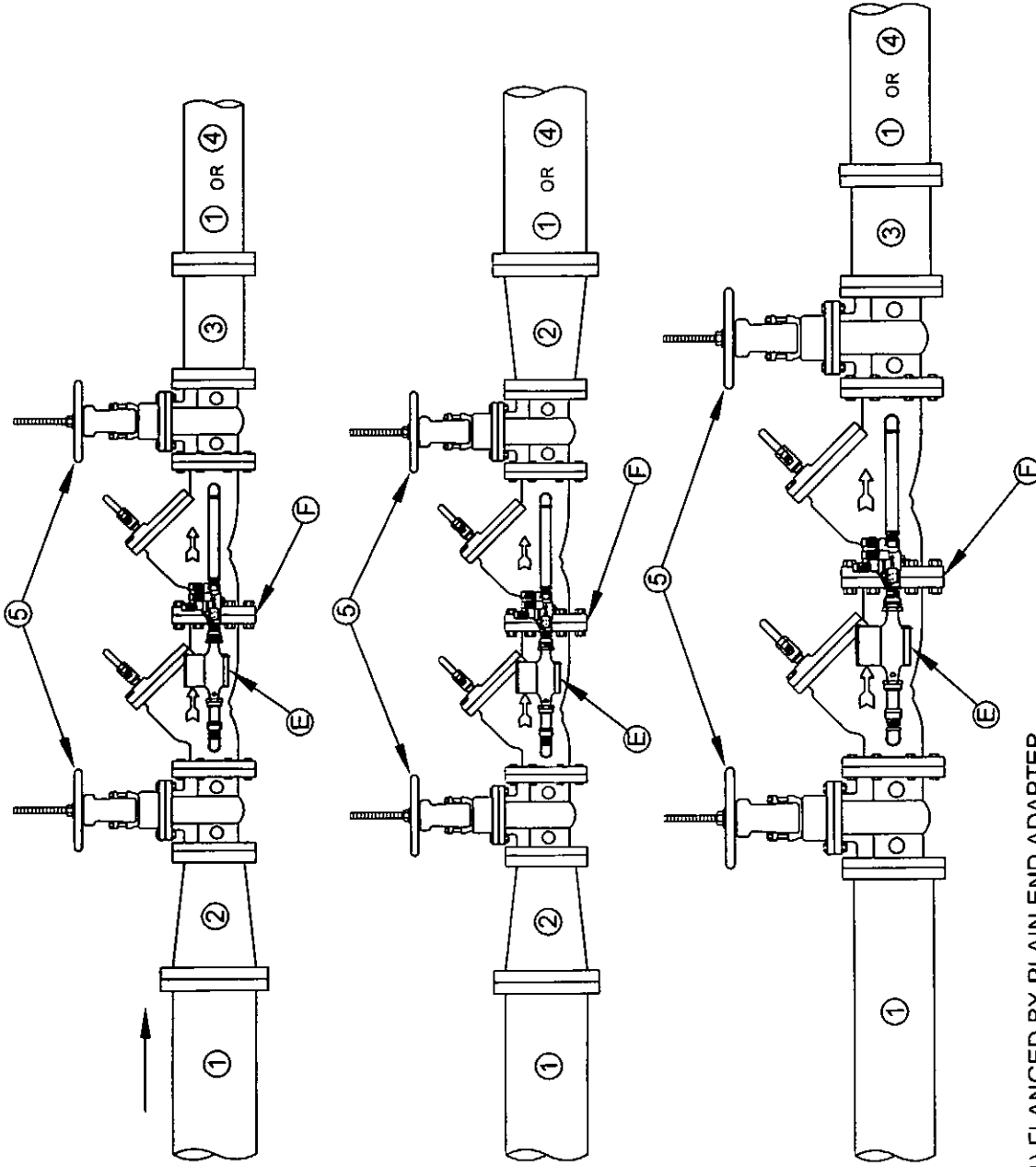


PIPING ARRANGEMENT DOMESTIC METERS 3" & LARGER

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED: *[Signature]*
DATE: 5-12-06

STANDARD DRAWING
108-6



1) FLANGED BY PLAIN END ADAPTER

2) FLANGED REDUCING SPOOL

3) FLANGED SPOOL, 12" LONG

4) FLANGED BY MECHANICAL JOINT (OPTIONAL)

5) VALVES MUST BE OS & Y

DETAILS:

- A) ANY PUMPER CONNECTION MUST BE INSTALLED ON SIDE OPPOSITE METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- B) IF A PUMPER CONNECTION IS USED IN A PIT, THE SPOOL "3" MAY BE ELIMINATED.
- C) IF A PUMPER CONNECTION IS NOT USED IN A PIT, THE DUCTILE IRON SPOOL "3" SHALL BE INSTALLED DIRECTLY TO THE DOWNSTREAM SIDE OF THE OUTLET VALVE.
- D) IF A POST INDICATOR IS USED ON ANY VALVE WITHIN A PIT, IT MUST BE A TYPE THAT WILL ATTACH TO THE WHEEL OPERATOR AND ALLOW OPERATION OF THE VALVE FROM INSIDE THE PIT. THE BASE OF THE POST INDICATOR SHALL NOT OBSTRUCT THE PIT OPENING.
- E) METER TO BE PURCHASED FROM AND INSTALLED BY GCWW.
- F) DOUBLE CHECK DETECTOR CHECK AS APPROVED BY GCWW.

PIPING ARRANGEMENT

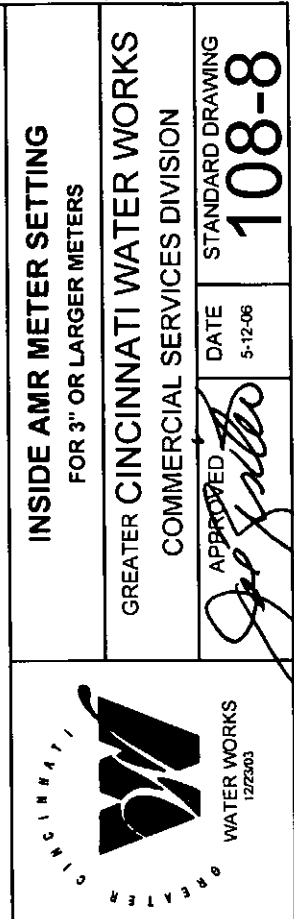
DOUBLE CHECK DETECTOR CHECK ASSEMBLY

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED *[Signature]* DATE 5-12-06

STANDARD DRAWING
108-7

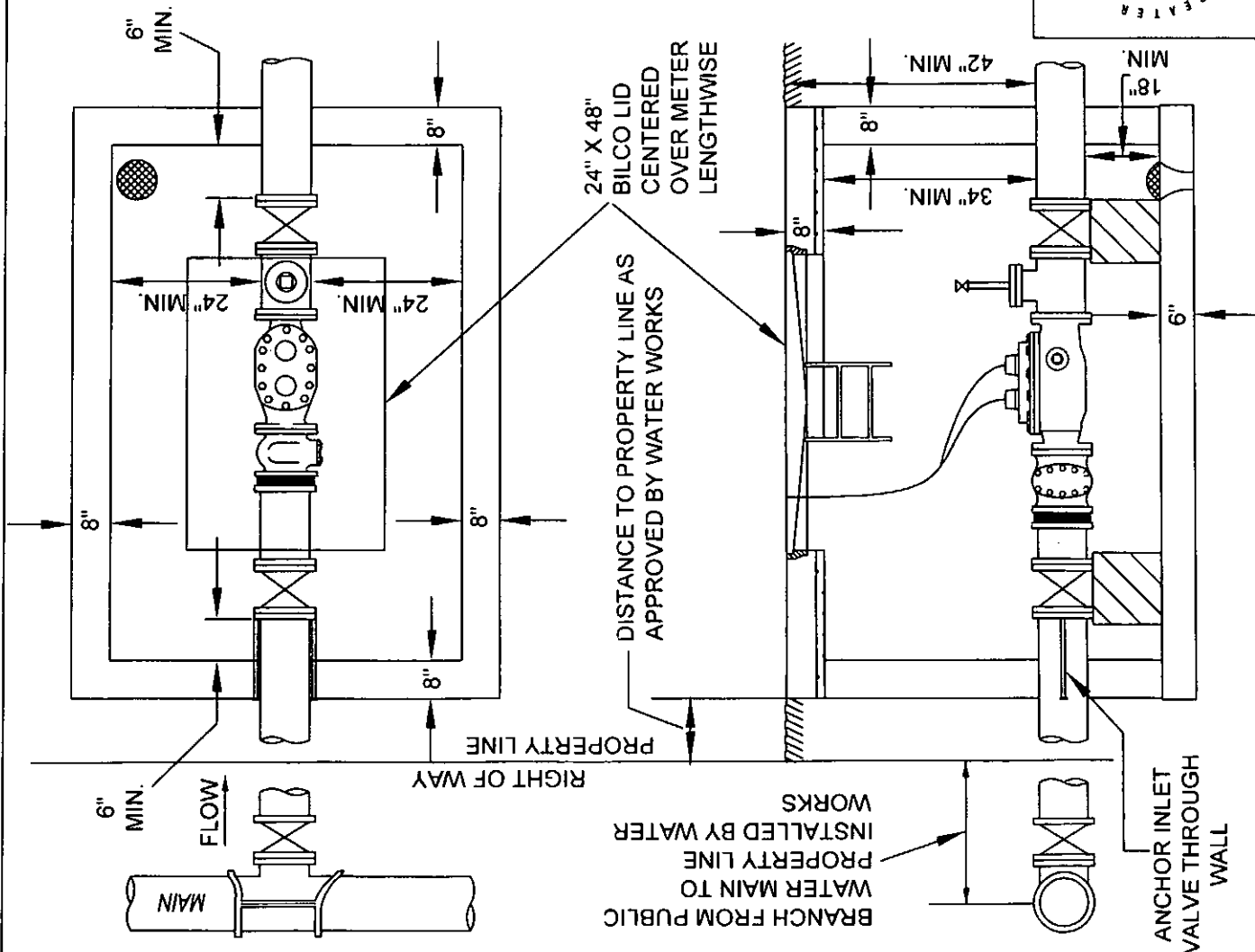




- A) SEE 108-1B & 1C FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-1E FOR AMR INSTALLATION DETAILS.
- C) SEE 108-1G FOR METER LAYING LENGTH REQUIREMENTS.
- D) SEE 108-6 FOR PIPING ARRANGEMENTS FOR DOMESTIC METERS 3" AND LARGER.
- E) A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT AND THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.
- F) MIU MUST BE INSTALLED 36" TO 60" ABOVE FINISHED GRADE.
- G) METER MUST BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- H) BLOCKING MUST BE PLACED UNDER VALVES.

DETAILS:

- SEE 108-1, 108-1A, 108-1B & 108-1C FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS.
- SEE 108-1E FOR AMR INSTALLATION DETAILS.
- SEE 108-1G FOR METER LAYING LENGTH REQUIREMENTS.
- SEE 108-6 FOR PIPING ARRANGEMENTS FOR DOMESTIC METERS 3" AND LARGER.
- BLOCKING MUST BE PLACED UNDER VALVES.
- METER MUST BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- A FACTORY DRILLED $1\frac{3}{4}$ " HOLE MUST BE DRILLED IN THE BILCO LID IF THE PIT IS LOCATED IN AN UNPAVED AREA.
- LID MUST BE CENTERED LENGTHWISE OVER THE METER.
- TEST TEE (SEE DETAIL 108-6)



OUTSIDE AMR METER SETTING FOR 3" OR LARGER METERS

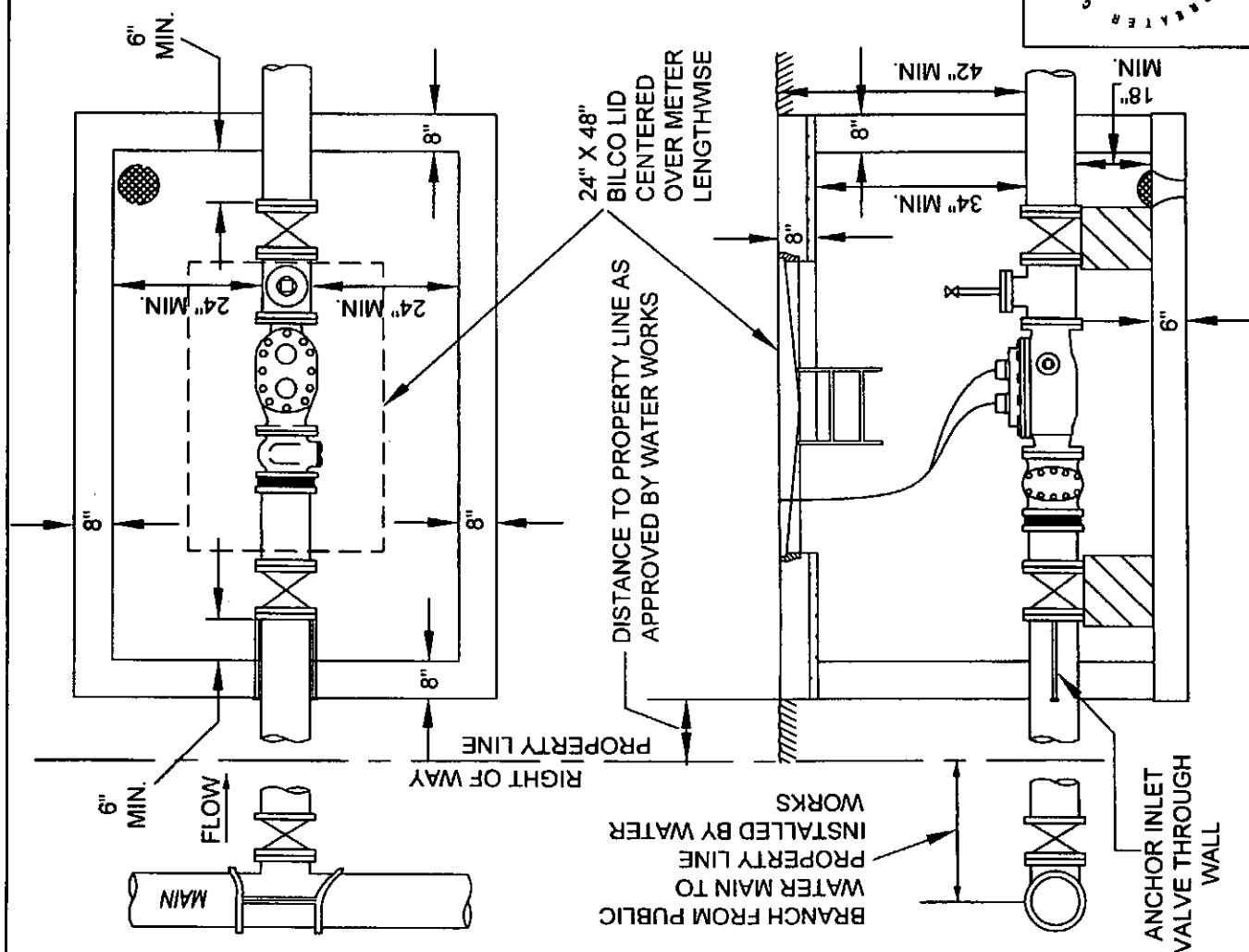
GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED *[Signature]* DATE 5-12-06

STANDARD DRAWING
108-8A

DETAILS:

- A) SEE 108-1, 108-1A, 108-1B & 108-1C FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-1E FOR AMR INSTALLATION DETAILS.
- C) SEE 108-1G FOR METER LAYING LENGTH REQUIREMENTS.
- D) SEE 108-6 FOR PIPING ARRANGEMENTS FOR DOMESTIC METERS 3" AND LARGER.
- E) BLOCKING MUST BE PLACED UNDER VALVES.
- F) METER MUST BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- G) A FACTORY DRILLED 1 1/2" HOLE MUST BE DRILLED IN THE BILCO LID IF THE PIT IS LOCATED IN AN UNPAVED AREA.
- H) LID MUST BE CENTERED LENGTHWISE OVER THE METER.



OUTSIDE AMR METER SETTING

FOR 3" OR LARGER METERS

GREATER CINCINNATI WATER WORKS

COMMERCIAL SERVICES DIVISION

APPROVED DATE 1/1/04

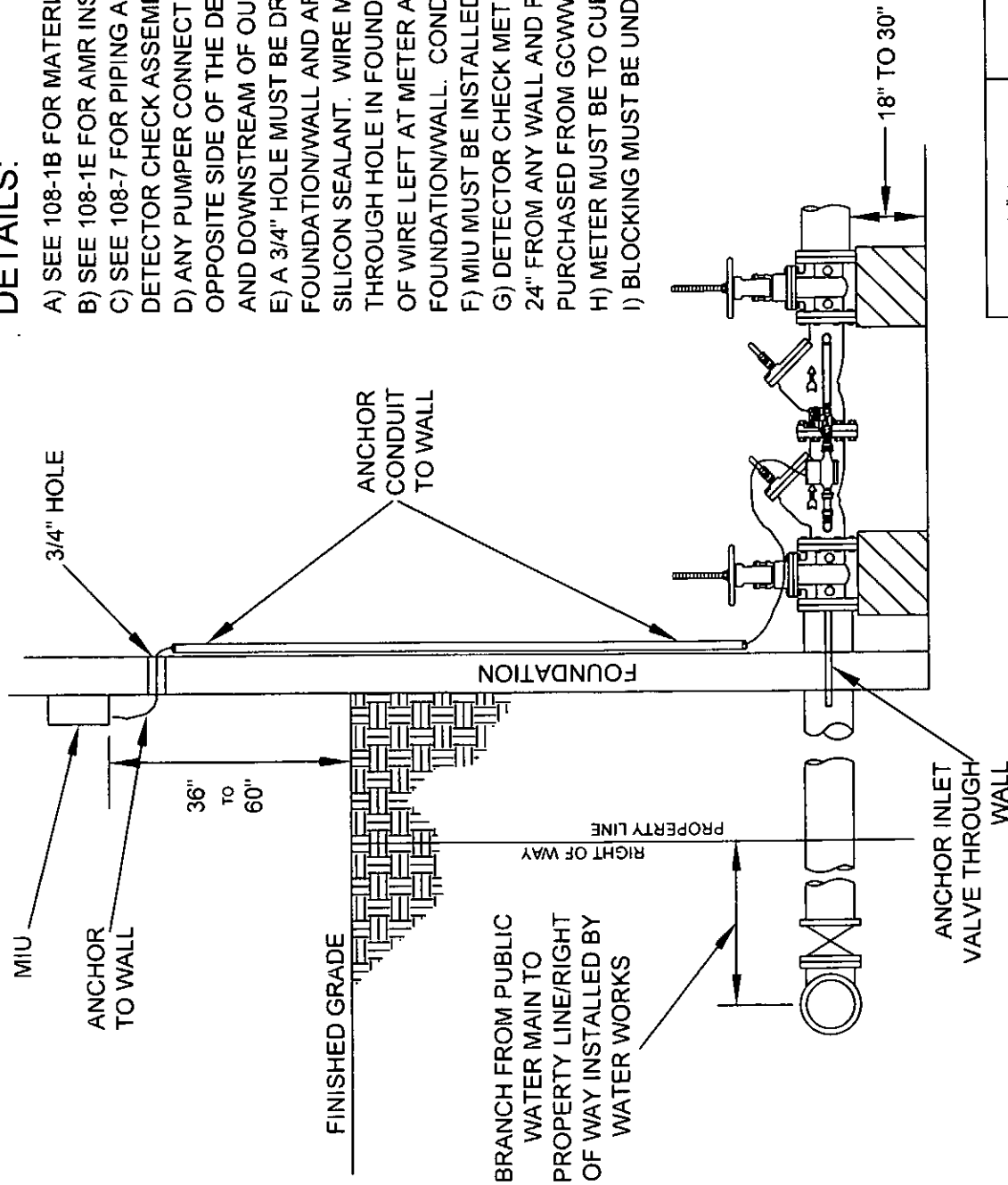
Paul J. Jones

STANDARD DRAWING 108-8A



DETAILS:

- A) SEE 108-1B FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-1E FOR AMR INSTALLATION DETAILS.
- C) SEE 108-7 FOR PIPING ARRANGEMENTS FOR DOUBLE CHECK DETECTOR CHECK ASSEMBLY.
- D) ANY PUMPER CONNECTION MUST BE INSTALLED ON THE OPPOSITE SIDE OF THE DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- E) A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.
- F) MIU MUST BE INSTALLED 36" TO 60" ABOVE FINISHED GRADE.
- G) DETECTOR CHECK METER MUST BE INSTALLED A MINIMUM OF 24" FROM ANY WALL AND FACING INTO THE ROOM. METER TO BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- H) METER MUST BE TO CURRENT GCWW SPECIFICATIONS.
- I) BLOCKING MUST BE UNDER VALVES.



INSIDE AMR DOUBLE CHECK DETECTOR CHECK VALVE SETTING

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

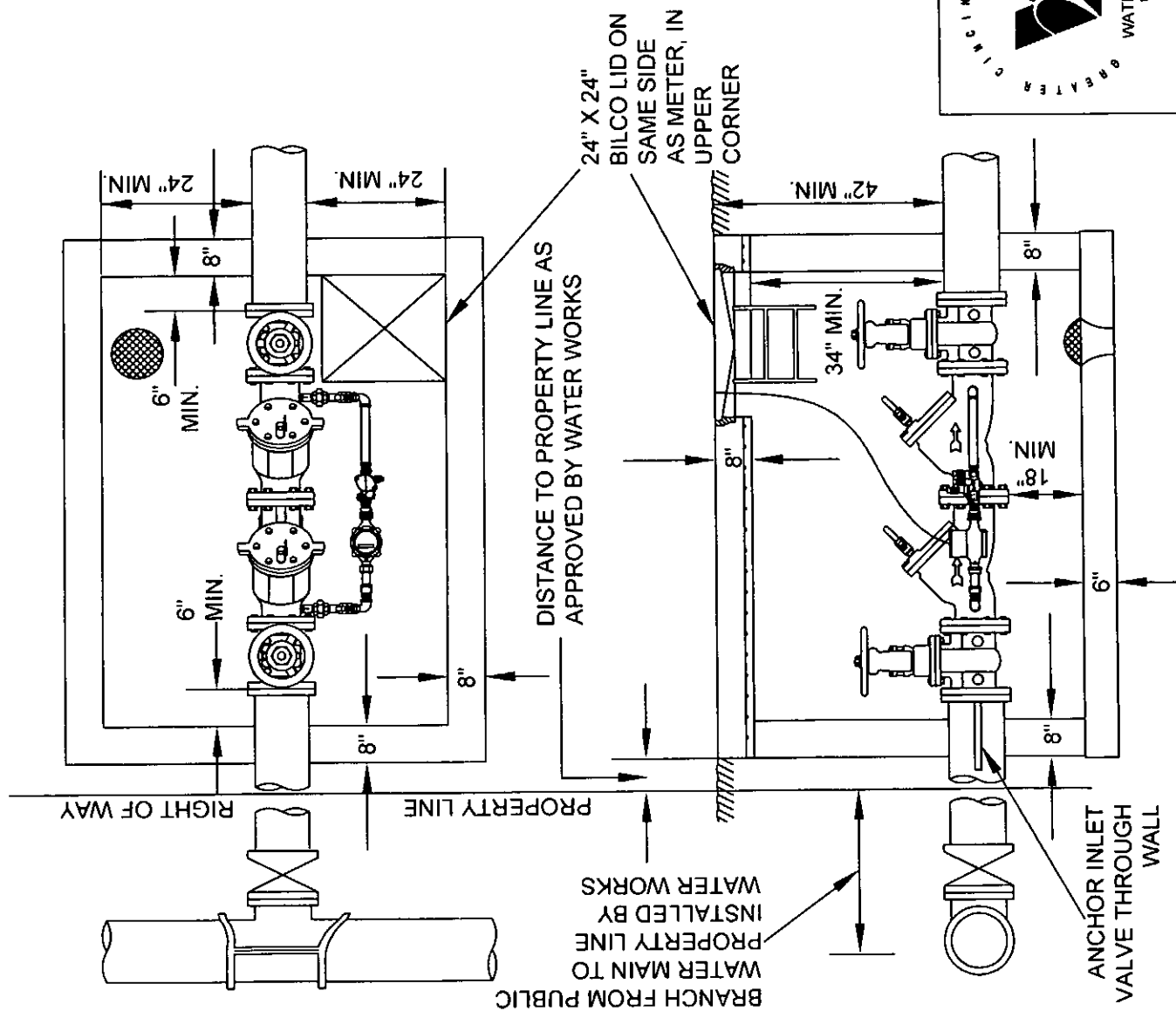
APPROVED
[Signature]

DATE
5-12-06

STANDARD DRAWING
108-8B

- A) SEE 108-1, 108-1A, 108-1B & 108-1C FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-7 FOR PIPING ARRANGEMENT.
- C) SEE 108-1E FOR AMR INSTALLATION SPECIFICATIONS.
- D) PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF THE OUTLET VALVE.

- E) METER MUST BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- F) BLOCKING MUST BE UNDER VALVES.
- G) A FACTORY DRILLED 1 3/4" HOLE MUST BE DRILLED IN THE BILCO LID IF THE PIT IS LOCATED IN AN UNPAVED AREA.
- H) LID SHALL BE LOCATED IN CORNER ON THE SAME SIDE AS METER.



**OUTSIDE AMR DOUBLE CHECK
DETECTOR CHECK VALVE SETTING**

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

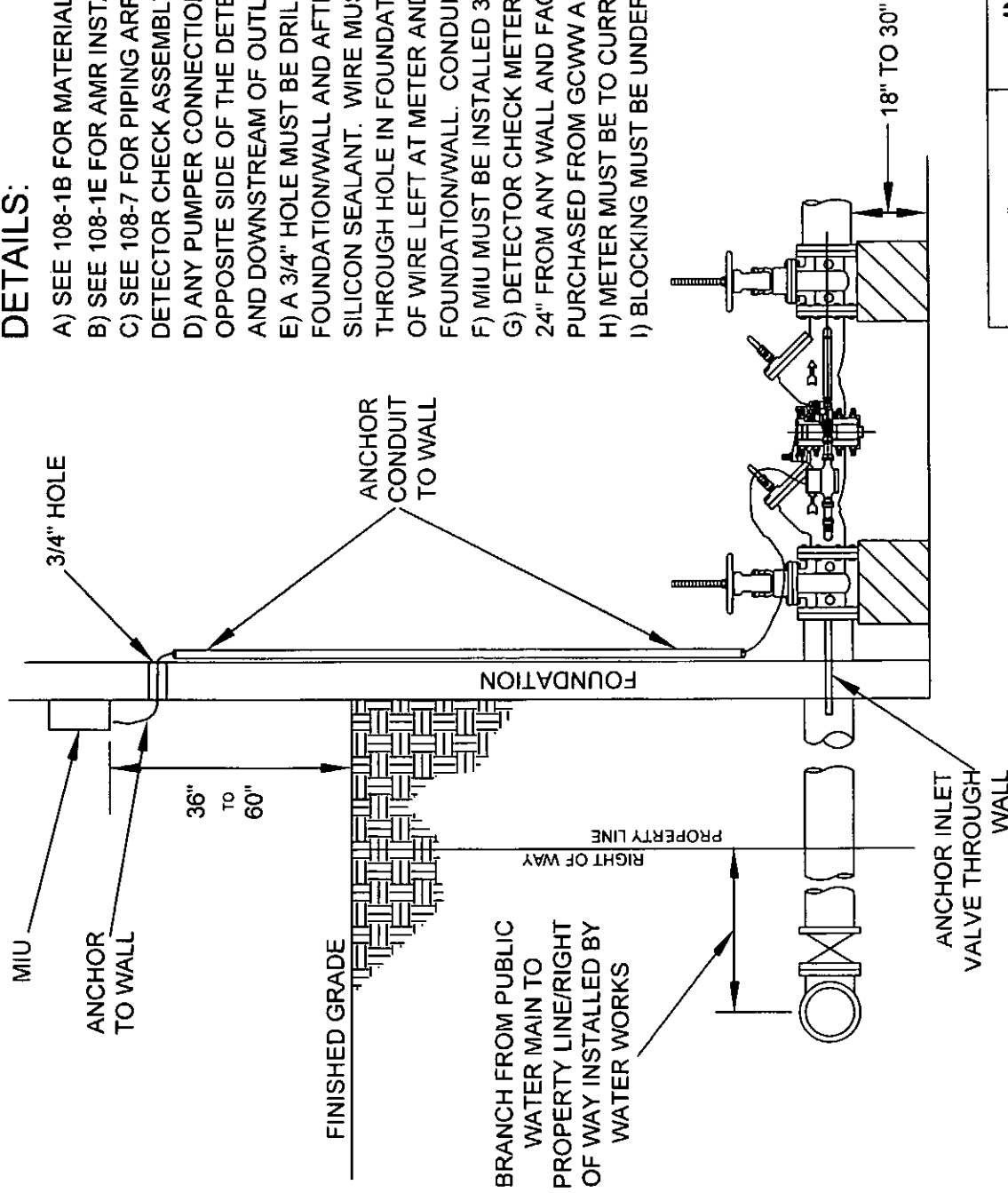
STANDARD DRAWING
108-8C

DATE 5-12-08

APPROVED *[Signature]*

DETAILS:

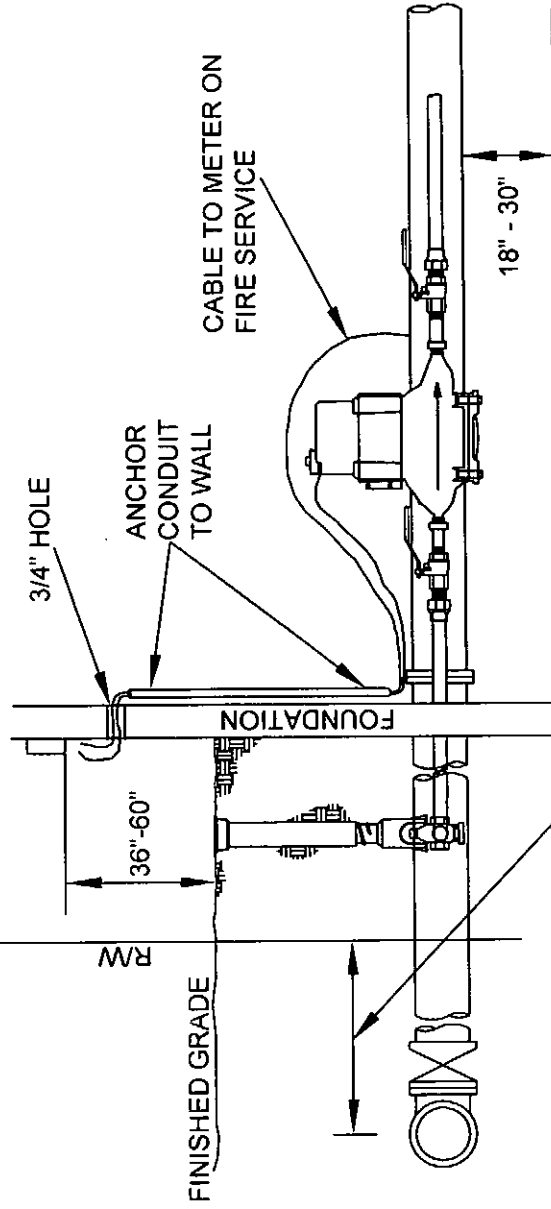
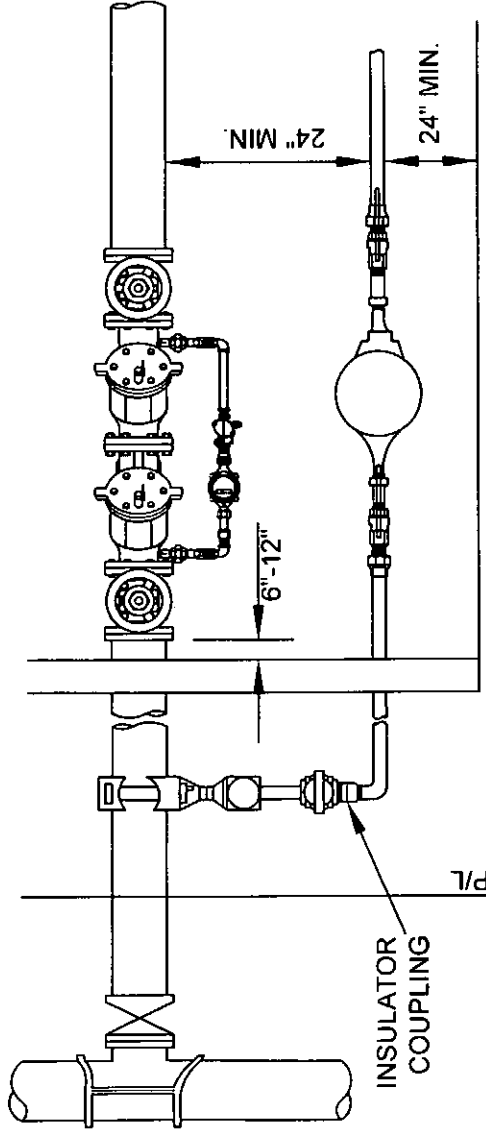
- A) SEE 108-1B FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-1E FOR AMR INSTALLATION DETAILS.
- C) SEE 108-7 FOR PIPING ARRANGEMENTS FOR DOUBLE CHECK DETECTOR CHECK ASSEMBLY.
- D) ANY PUMPER CONNECTION MUST BE INSTALLED ON THE OPPOSITE SIDE OF THE DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- E) A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.
- F) MIU MUST BE INSTALLED 36" TO 60" ABOVE FINISHED GRADE.
- G) DETECTOR CHECK METER MUST BE INSTALLED A MINIMUM OF 24" FROM ANY WALL AND FACING INTO THE ROOM. METER TO BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- H) METER MUST BE TO CURRENT GCWW SPECIFICATIONS.
- I) BLOCKING MUST BE UNDER VALVES.



INSIDE EMR REDUCED PRESSURE DETECTOR CHECK VALVE SETTING

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED
[Signature]
DATE
5-12-06
STANDARD DRAWING
108-8D



BRANCH FROM PUBLIC
WATER MAIN TO
PROPERTY LINE/RIGHT
OF WAY INSTALLED BY
WATER WORKS

DETAILS:

- SEE 108-1B FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS AND 108-1E FOR AMR SPECIFICATIONS.
- SEE 108-3A FOR INSIDE METER SETTING DETAILS.
- SEE 108-7 DETAILS PIPING ARRANGEMENT ON DETECTOR CHECK VALVE ASSEMBLY.
- AN INSULATOR COUPLING MUST BE INSTALLED ON THE HOUSE SIDE OF THE CURB STOP.
- 24" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN DOMESTIC METER AND DETECTOR CHECK VALVE ASSEMBLY AND A MINIMUM OF 24" FROM ANY WALL. METER TO BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- ANY PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- BLOCKING MUST BE UNDER OS & Y VALVES.
- A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.

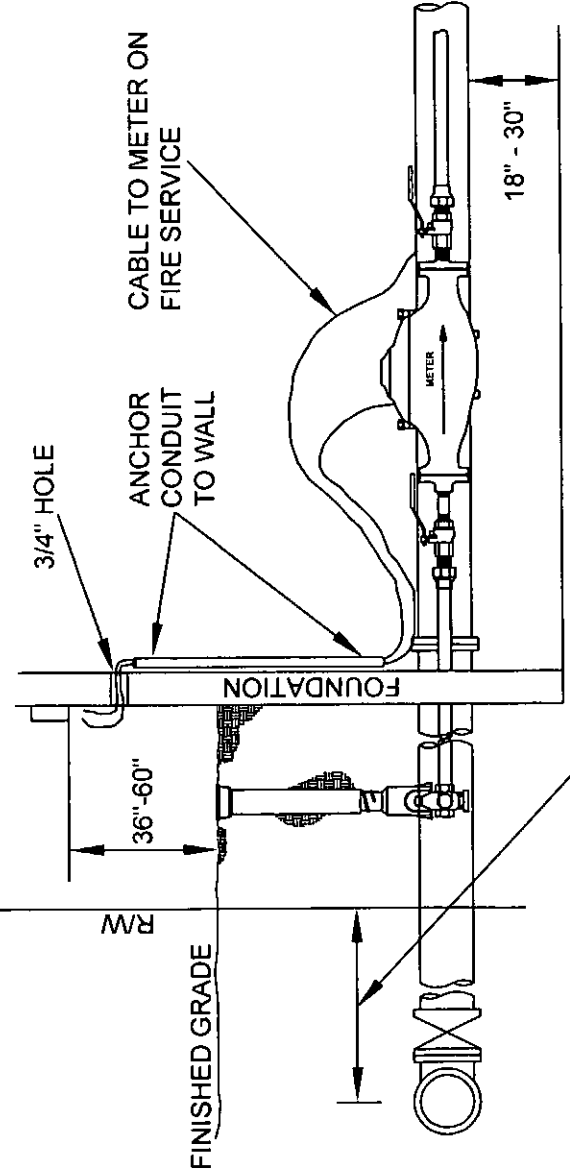
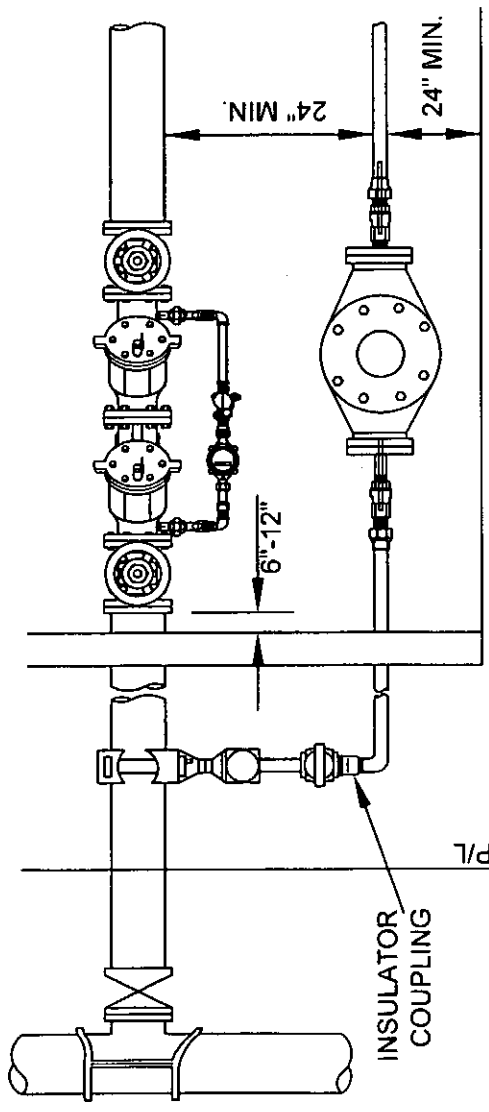
INSIDE AMR DUAL SERVICE SETTING
FOR 3/4" & 1" DOMESTIC METER

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED
DATE
5-12-06

STANDARD DRAWING
108-9





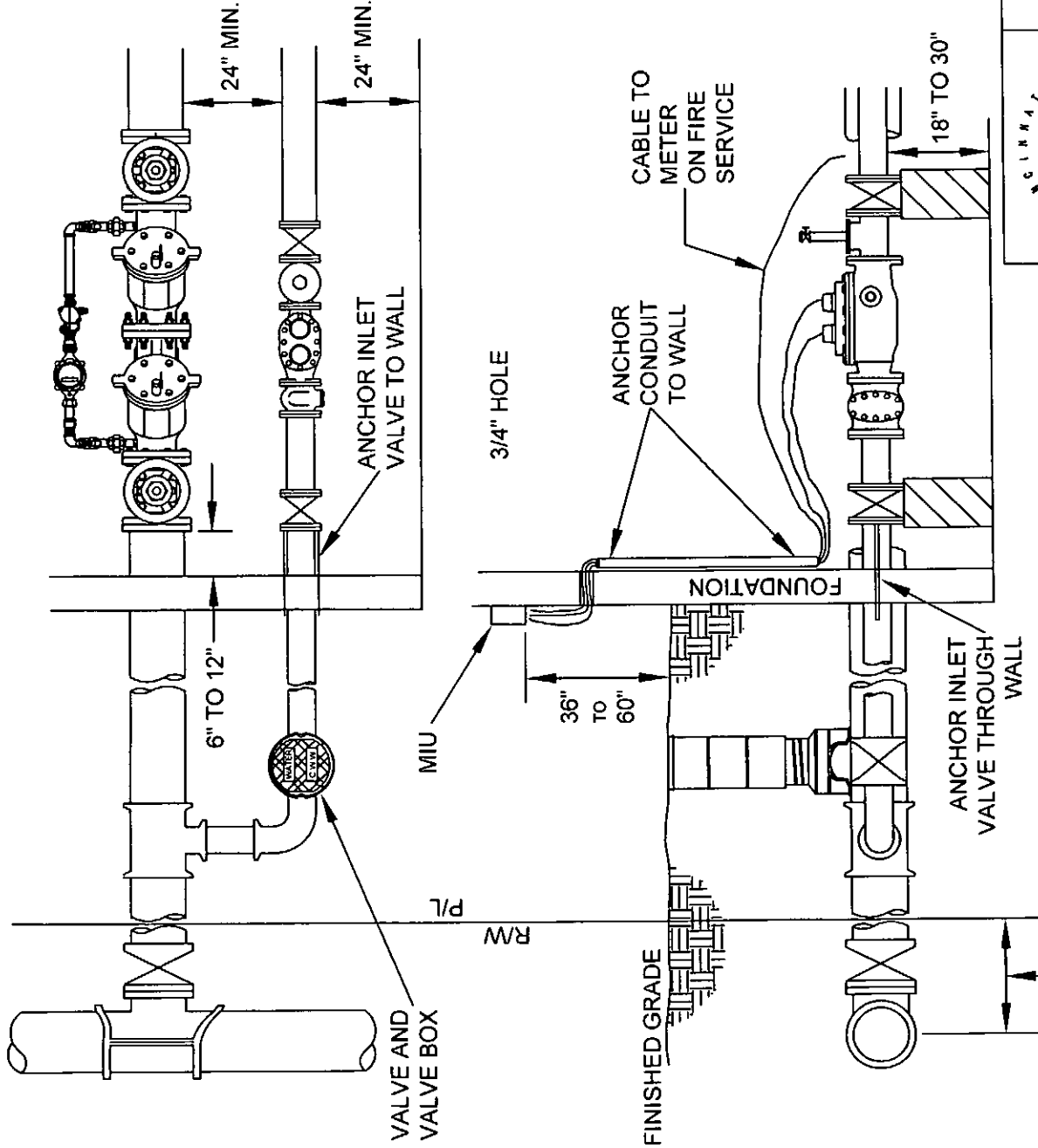
BRANCH FROM PUBLIC WATER MAIN TO PROPERTY LINE/RIGHT OF WAY INSTALLED BY WATER WORKS

DETAILS:

- A) SEE 108-1B FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS AND 108-1E FOR AMR SPECIFICATIONS.
- B) SEE 108-3B FOR INSIDE METER SETTING DETAILS.
- C) SEE 108-7 FOR PIPING ARRANGEMENT ON DETECTOR CHECK VALVE ASSEMBLY.
- D) AN INSULATOR COUPLING MUST BE INSTALLED ON THE HOUSE SIDE OF THE CURB STOP.
- E) 24" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN DOMESTIC METER AND DETECTOR CHECK VALVE ASSEMBLY AND A MINIMUM OF 24" FROM ANY WALL. METER TO BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- F) ANY PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- G) A ROADWAY BOX MUST BE INSTALLED OVER DOMESTIC CORPORATION STOP.
- H) BLOCKING MUST BE UNDER OS & Y VALVES.
- I) A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.



INSIDE AMR DUAL SERVICE SETTING FOR 1 1/2" & 2" DOMESTIC METER	
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
APPROVED <i>[Signature]</i>	DATE 5-12-06
STANDARD DRAWING 108-9A	



DETAILS:

- SEE 108-1B FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS AND 108-1E FOR AMR SPECIFICATIONS.
- SEE 108-6 FOR PIPING ARRANGEMENT ON DOMESTIC METER.
- SEE 108-7 FOR PIPING ARRANGEMENT ON DETECTOR CHECK VALVE ASSEMBLY.
- 24" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN DOMESTIC METER AND DOUBLE DETECTOR CHECK VALVE ASSEMBLY AND A MINIMUM OF 24" FROM ANY WALL. DC METER SHALL BE INSTALLED ON THE SIDE OPPOSITE OF THE DOMESTIC METER. METER TO BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- ANY PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DOUBLE DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- A VALVE BOX COMPLETE MUST BE INSTALLED ON THE DOMESTIC BRANCH.
- BLOCKING MUST BE UNDER OS & Y VALVES.
- A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATIONWALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT THROUGH HOLE IN FOUNDATIONWALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATIONWALL. CONDUIT SHALL BE ANCHORED TO WALL.

INSIDE AMR DUAL SERVICE SETTING FOR 3" OR LARGER DOMESTIC METER

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

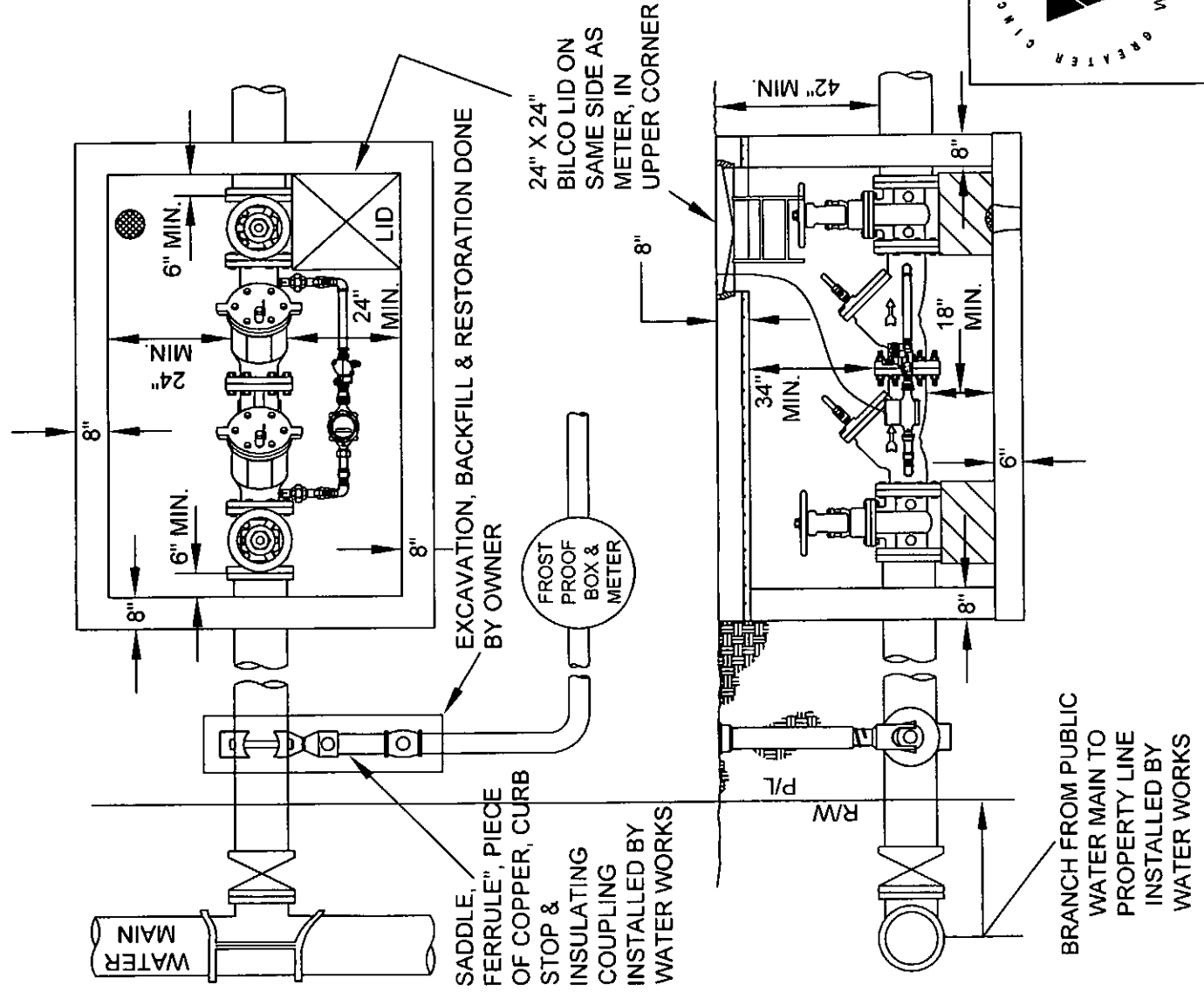
APPROVED
DATE 5-12-06
STANDARD DRAWING
108-10



BRANCH FROM PUBLIC
WATER MAIN TO
PROPERTY LINE/RIGHT
OF WAY INSTALLED BY
WATER WORKS

DETAILS:

- A) SEE 108-1, 108-1A, 108-1B & 108-1C FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-1E FOR AMR INSTALLATION SPECIFICATIONS.
- C) SEE 108-5 FOR 5/8" AND 3/4" METER SETTINGS; 108-5A FOR 1" METER SETTINGS; 108-5B FOR 1 1/2" AND 2" METER SETTING SPECIFICATIONS.
- D) SEE 108-7 FOR DETAILS PIPING ARRANGEMENT FOR DOUBLE CHECK DETECTOR CHECK VALVE ASSEMBLY.
- E) A CURB BOX MUST BE INSTALLED ON A 3/4" AND 1" DOMESTIC BRANCH AND A TELESCOPE BOX MUST BE INSTALLED ON A 1 1/2" AND 2" DOMESTIC BRANCH.
- F) ANY PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DOUBLE DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- G) BLOCKING MUST BE UNDER OS & Y VALVES.
- H) A FACTORY DRILLED 1-3/4" HOLE MUST BE DRILLED IN THE BILCO LID IF THE PIT IS LOCATED IN AN UNPAVED AREA.



OUTSIDE AMR DUAL SERVICE SETTING
FOR 2" AND SMALLER DOMESTIC METERS

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED: *[Signature]*
DATE: 5-12-06
STANDARD DRAWING
108-11



This technical drawing illustrates the installation of a fire alarm control panel, showing both front and side views with detailed dimensions and component labels.

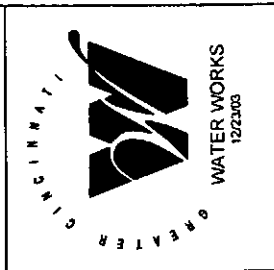
Front View (Left):

- The panel is 24" wide and 48" high, labeled as a "24" X 48" BILCO LID".
- It features three circular components (likely relays or modules) and a "VALVE AND VALVE BOX" at the bottom.
- Dimensions include 8" for the width of the top section, 6" MIN. for the distance between the top section and the valve box, and 24" MIN. for the overall width.
- An "ANCHOR INLET VALVE TO WALL" is indicated on the right side.

Side View (Right):

- Shows the panel's profile and its connection to the "WATER MAIN TO PUBLIC" and "PROPERTY LINE/RW" (Right of Way).
- The distance from the panel to the property line is labeled "DISTANCE TO PROPERTY LINE AS APPROVED BY WATER WORKS".
- A "CABLE TO METER ON FIRE SERVICE" is shown connecting the panel to the water main.
- Dimensions include 42" MIN. for the overall height, 8" for the panel thickness, and 34" MIN. for the distance from the panel to the water main.
- The "ANCHOR INLET VALVE TO WALL" is also shown in this view.

- A) SEE 108-1, 1B & 1C FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS AND 108-1E FOR AMR SPECIFICATIONS.
- B) SEE 108-6 FOR PIPING ARRANGEMENT ON DOMESTIC METER.
- C) SEE 108-7 FOR PIPING ARRANGEMENT ON DETECTOR CHECK VALVE ASSEMBLY.
- D) 24" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN METER AND DOUBLE DETECTOR CHECK VALVE ASSEMBLY AND A MINIMUM OF 24" FROM ANY WALL. DC METER MUST BE INSTALLED ON THE SIDE OPPOSITE FROM DOMESTIC METER.
- E) ANY PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DOUBLE DETECTOR CHECK ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- F) A VALVE BOX MUST BE INSTALLED ON THE DOMESTIC BRANCH.
- G) BLOCKING MUST BE UNDER VALVES.
- H) A FACTORY DRILLED 1 3/4" HOLE MUST BE DRILLED IN THE BILCO LID IF THE PIT IS LOCATED IN AN UNPAVED AREA.
- I) LID MUST BE CENTERED LENGTHWISE OVER THE DOMESTIC METER.



OUTSIDE AMR DUAL SERVICE SETTING FOR 3" AND LARGER METERS

**GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION**

APPROVED	DATE	STANDARD DRAWING
----------	------	------------------

DATE 5-12-06

108-12

DETAILS:

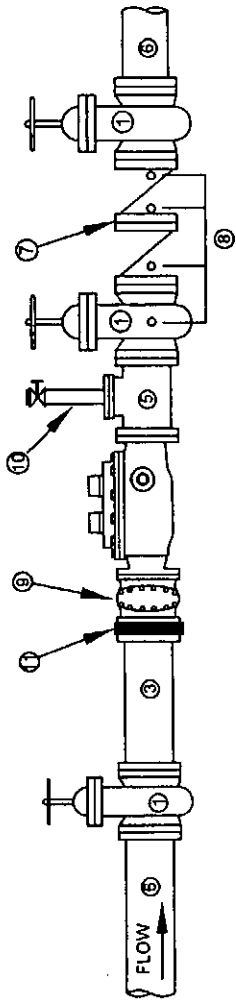
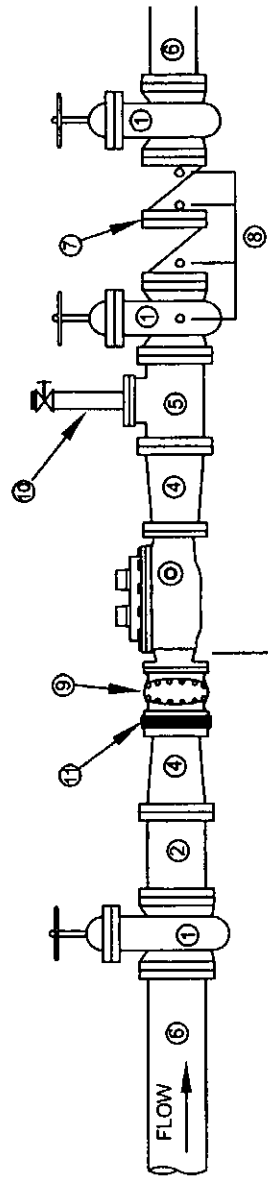
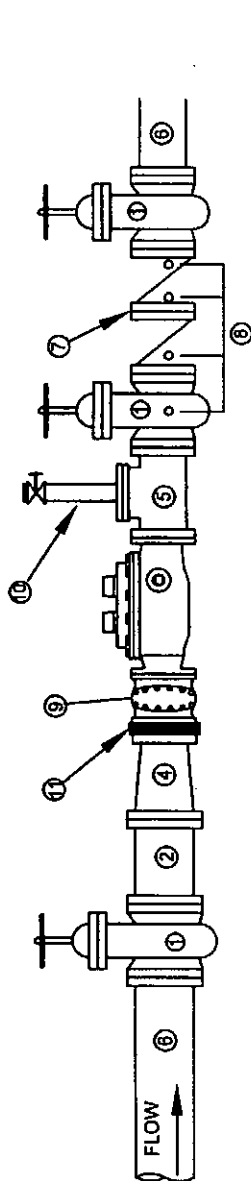
A) TEST COCKS SHALL BE LOCATED AS FOLLOWS: a) INLET SIDE OF GATE VALVE IMMEDIATELY UPSTREAM OF BACKFLOW PREVENTER b) INLET SIDE OF UPSTREAM CHECK VALVE c) OUTLET SIDE OF DOWNSTREAM CHECK VALVE.

B) TEST COCK SIZES SHALL BE AS FOLLOWS:
a) 1/4" FOR BACKFLOW PREVENTERS 2" AND SMALLER b) 1/2" FOR 3" AND 4" BACKFLOW PREVENTERS c) 3/4" FOR BACKFLOW PREVENTERS 6" AND LARGER.

C) IF A POST INDICATOR IS USED ON ANY VALVE WITHIN THE PIT, IT MUST BE A TYPE THAT WILL ATTACH TO THE WHEEL OPERATOR AND ALLOW OPERATION OF THE VALVE FROM INSIDE THE PIT, WHEN THE LOCK IS REMOVED.

D) SEE 108-6 FOR PIPING ARRANGEMENT OF DOMESTIC METERS 3" OR LARGER.

E) THAT PORTION OF THE SERVICE PIPING BETWEEN THE METER SETTING AND THE BACKFLOW PREVENTER SHALL BE VOID OF BRANCHES OR OUTLETS OF ANY KIND.



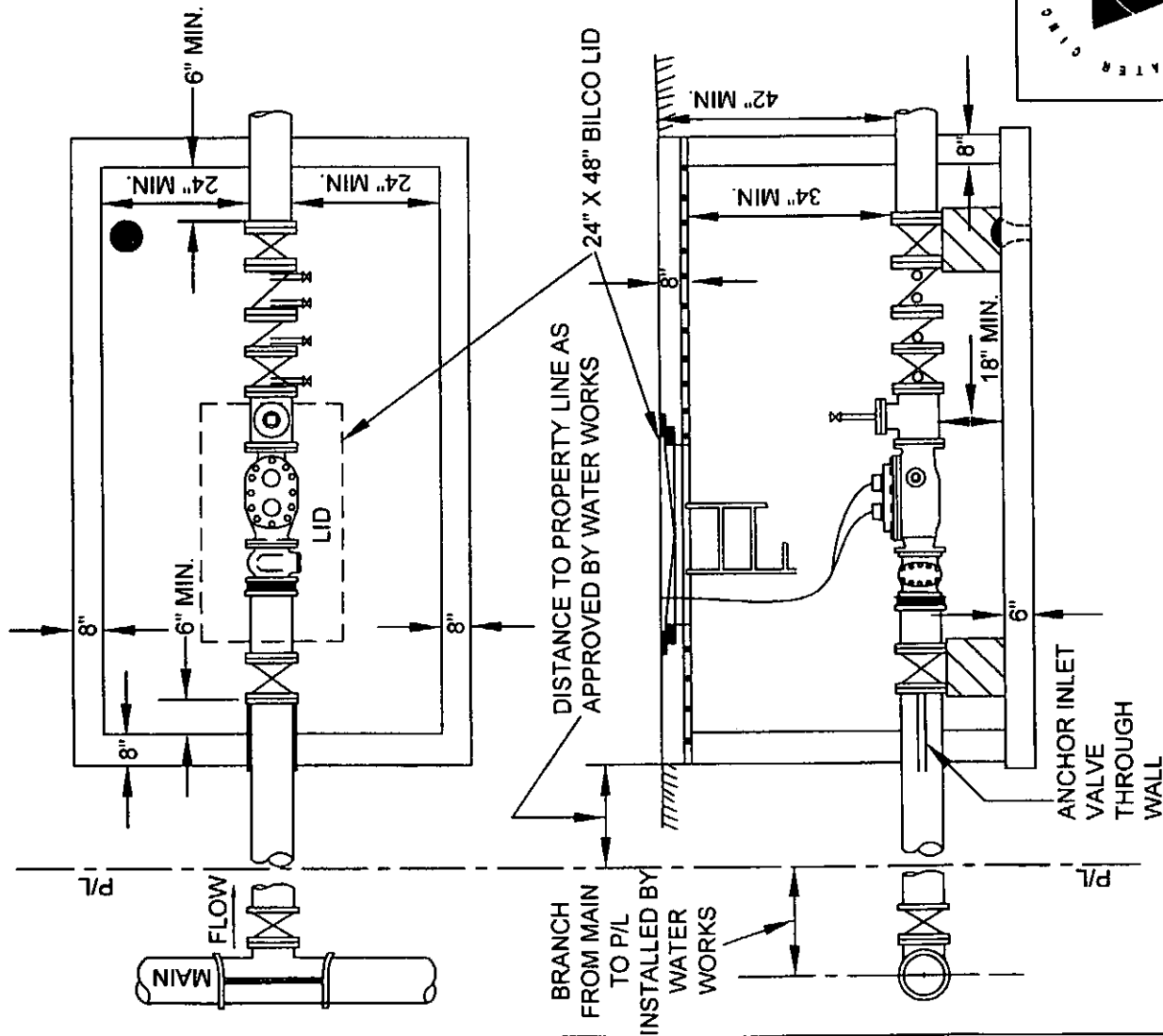
- 1) FLANGED GATE VALVE WITH WHEEL OPERATOR
- 2) FLANGED SPOOL 6" LONG WITH 1/2" TAPPED OUTLET
- 3) FLANGED SPOOL 12" LONG WITH 1/2" TAPPED OUTLET
- 4) FLANGED REDUCING SPOOL
- 5) FLANGED TEST TEE
- 6) FLANGED BY PLAIN END ADAPTER 3' OR 6' LONG
- 7) BACKFLOW PREVENTER (NO SMALLER THAN METER SIZE)
- 8) TEST COCKS
- 9) STRAINER
- 10) TEST TEE
- 11) SPACER



PIPING ARRANGEMENT FOR DOMESTIC METERS 3" OR LARGER WITH BACKFLOW PREVENTER


GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED *Paul James* DATE 1/1/04 STANDARD DRAWING **108-13**



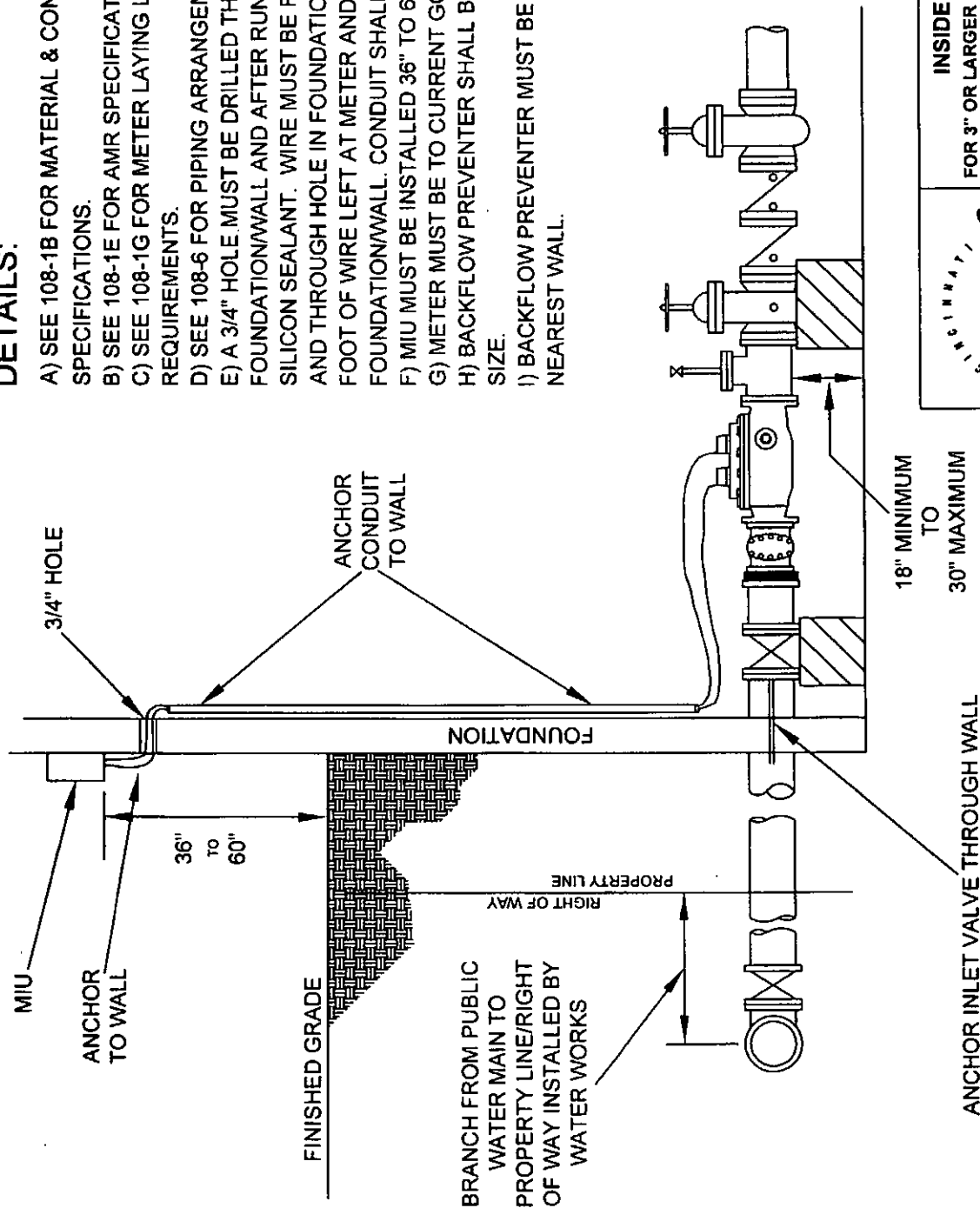
DETAILS:


- A) LID MUST BE CENTERED LENGTHWISE OVER THE METER.
- B) SEE 108-1, 1B & 1C FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS AND 108-1E FOR AMR SPECIFICATIONS.
- C) SEE 108-6 FOR PIPING ARRANGEMENT ON DOMESTIC METER.
- D) REMOVABLE METAL LADDER TO REACH FROM PIT FLOOR TO PIT OPENING.
- E) BACKFLOW PREVENTER SHALL BE NO SMALLER THAN METER SIZE.
- F) A FACTORY DRILLED 1 1/2\"/>

		PIT-METER 3" OR LARGER WITH DOUBLE CHECK BACKFLOW PREVENTER	
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION		DATE 1/1/04	
APPROVED <i>Paul Tama</i>		STANDARD DRAWING	
		108-14	

DETAILS:

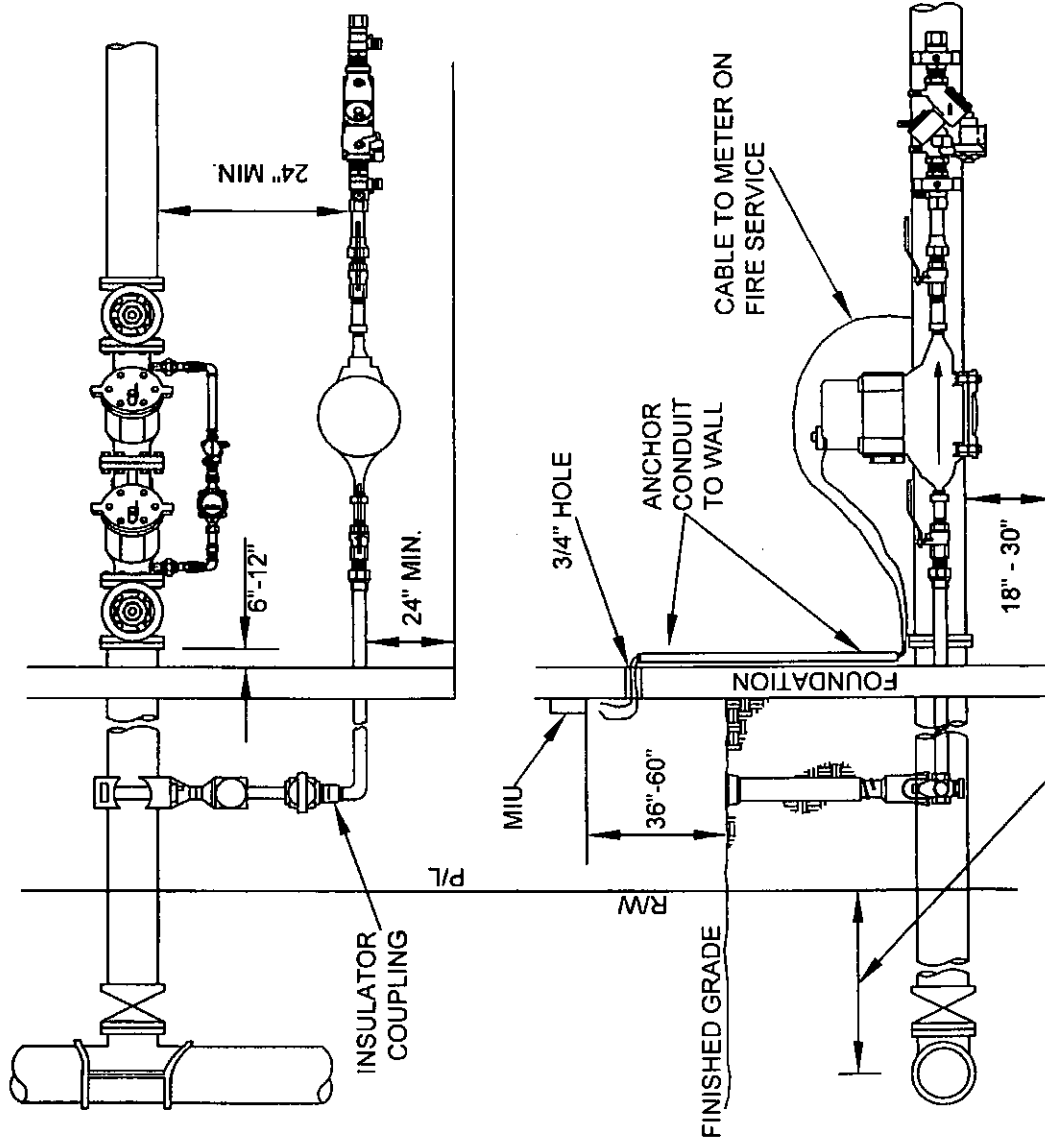
- A) SEE 108-1B FOR MATERIAL & CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-1E FOR AMR SPECIFICATIONS.
- C) SEE 108-1G FOR METER LAYING LENGTH SPACE REQUIREMENTS.
- D) SEE 108-6 FOR PIPING ARRANGEMENTS.
- E) A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT AND THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.
- F) MIU MUST BE INSTALLED 36" TO 60" ABOVE FINISHED GRADE.
- G) METER MUST BE TO CURRENT GCWW SPECIFICATIONS.
- H) BACKFLOW PREVENTER SHALL BE NO SMALLER THAN METER SIZE.
- I) BACKFLOW PREVENTER MUST BE AT LEAST 24" AWAY FROM NEAREST WALL.



	INSIDE EMR METER SETTING FOR 3" OR LARGER METERS WITH BACKFLOW PREVENTER		
	GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION		
APPROVED	DATE	STANDARD DRAWING	
<i>Paul T. Jones</i>	1/1/04	108-15	

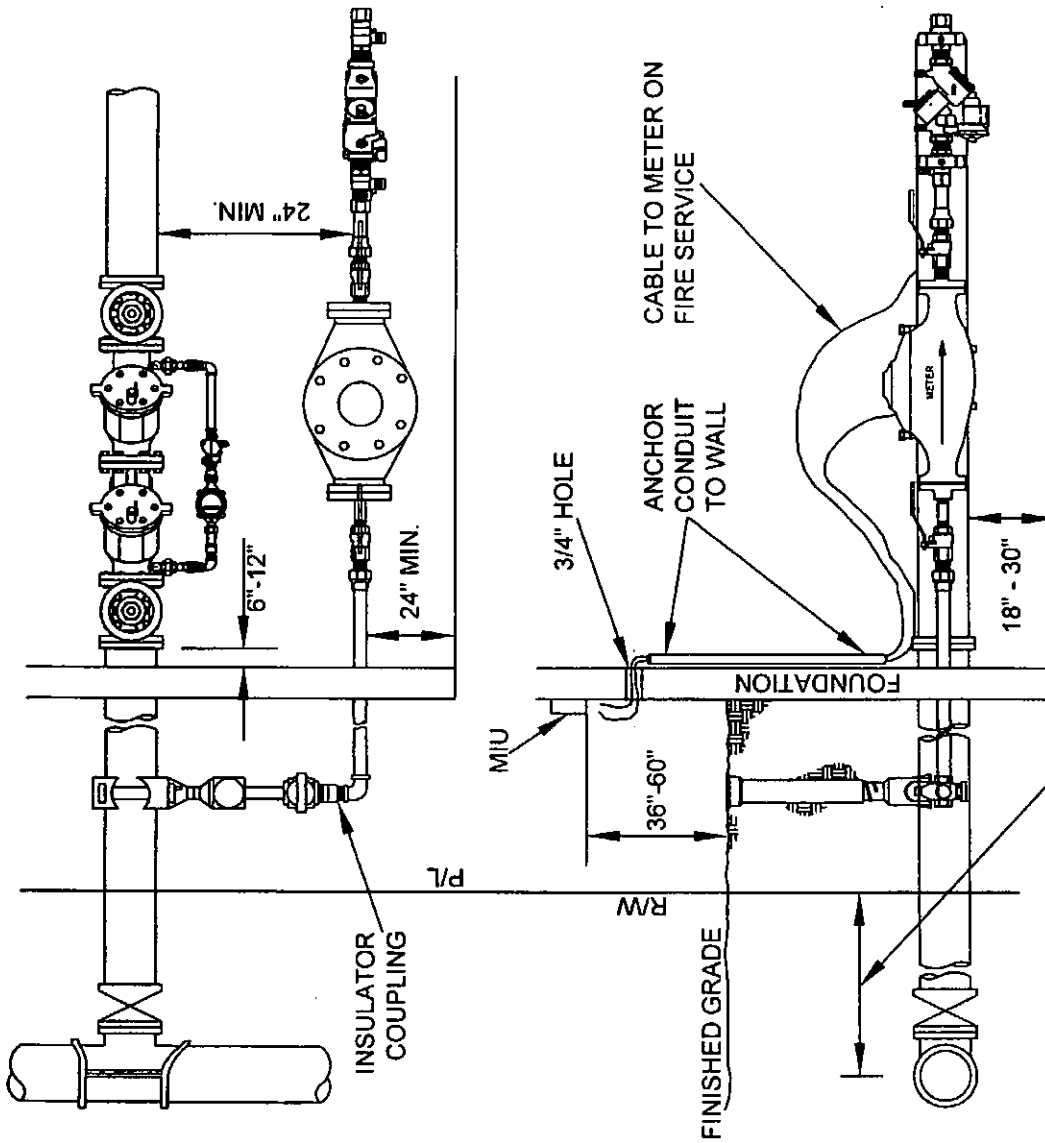
DETAILS:

- SEE 108-1B FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS AND 108-1E FOR AMR SPECIFICATIONS.
- SEE 108-3A FOR INSIDE METER SETTING DETAILS.
- SEE 108-7 PIPING ARRANGEMENT ON DETECTOR CHECK VALVE ASSEMBLY.
- AN INSULATOR COUPLING MUST BE INSTALLED ON THE HOUSE SIDE OF THE CURB STOP.
- 24" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN DOMESTIC METER AND DETECTOR CHECK VALVE ASSEMBLY AND A MINIMUM OF 24" FROM ANY WALL. METER TO BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- ANY PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- BLOCKING MUST BE UNDER OS & Y VALVES.
- A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.



INSIDE EMR DUAL SERVICE SETTING FOR 3/4" & 1" DOMESTIC METER WITH BACKFLOW PREVENTER	
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
APPROVED <i>Paul Lane</i>	DATE 1/1/04
STANDARD DRAWING 108-16	

BRANCH FROM PUBLIC
WATER MAIN TO
PROPERTY LINE/RIGHT
OF WAY INSTALLED BY
WATER WORKS



DETAILS:

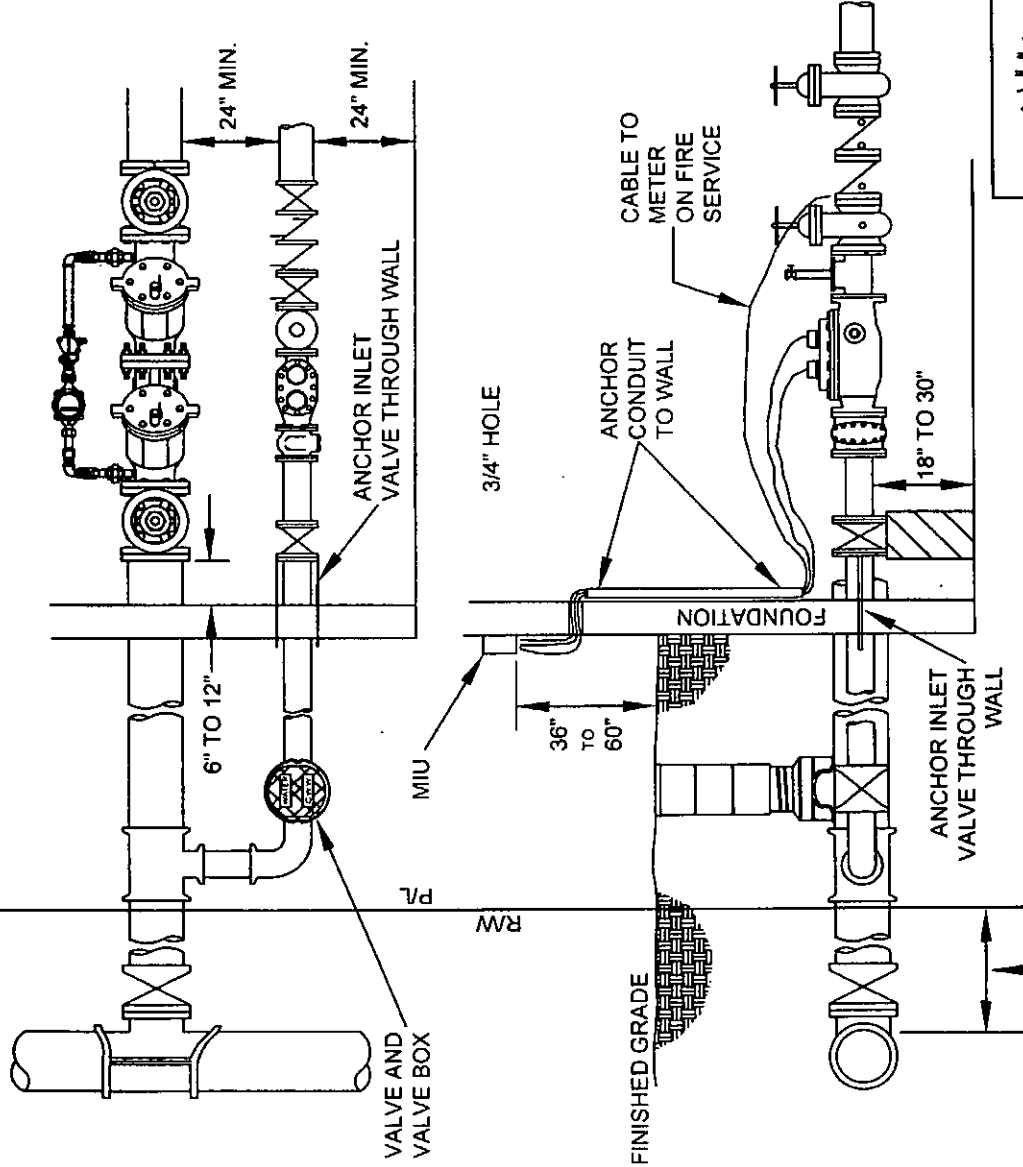
- A) SEE 108-1B FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS.
- B) SEE 108-3B FOR METER SETTING DETAILS.
- C) SEE 108-7 FOR PIPING ARRANGEMENT ON DETECTOR CHECK VALVE ASSEMBLY.
- D) AN INSULATOR COUPLING MUST BE INSTALLED ON THE HOUSE SIDE OF THE CURB STOP.
- E) 24" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN DOMESTIC METER AND DETECTOR CHECK VALVE ASSEMBLY AND A MINIMUM OF 24" FROM ANY WALL. METER TO BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- F) ANY PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- G) A ROADWAY BOX MUST BE INSTALLED OVER DOMESTIC CORPORATION STOP.
- H) BLOCKING MUST BE UNDER OS & Y VALVES.
- I) A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.

INSIDE EMR DUAL SERVICE SETTING FOR 1 1/2" & 2" DOMESTIC METER WITH BACKFLOW PREVENTER		
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION		
APPROVED <i>Paul T. ...</i>	DATE 1/1/04	STANDARD DRAWING 108-17



DETAILS:

- A) SEE 108-1B FOR MATERIAL AND CONSTRUCTION SPECIFICATIONS AND 108-1E FOR AMR SPECIFICATIONS.
- B) SEE 108-6 FOR PIPING ARRANGEMENT ON DOMESTIC METER.
- C) SEE 108-7 FOR PIPING ARRANGEMENT ON DETECTOR CHECK VALVE ASSEMBLY.
- D) 24" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN DOMESTIC METER AND DOUBLE DETECTOR CHECK VALVE ASSEMBLY AND A MINIMUM OF 24" FROM ANY WALL. DC METER SHALL BE INSTALLED ON THE SIDE OPPOSITE OF THE DOMESTIC METER. METER TO BE PURCHASED FROM GCWW AND INSTALLED BY CONTRACTOR.
- E) ANY PUMPER CONNECTION MUST BE INSTALLED ON OPPOSITE SIDE OF DOUBLE DETECTOR CHECK METER ASSEMBLY AND DOWNSTREAM OF OUTLET VALVE.
- F) A VALVE BOX COMPLETE MUST BE INSTALLED ON THE DOMESTIC BRANCH.
- G) BLOCKING MUST BE UNDER VALVES.
- H) BLOCKING MUST BE UNDER OS & Y VALVES.
- I) A 3/4" HOLE MUST BE DRILLED THROUGH BUILDING FOUNDATION/WALL AND AFTER RUNNING WIRE, FILLED WITH SILICON SEALANT. WIRE MUST BE RUN THROUGH 3/4" CONDUIT THROUGH HOLE IN FOUNDATION/WALL. THERE MUST BE 1 FOOT OF WIRE LEFT AT METER AND THROUGH HOLE IN FOUNDATION/WALL. CONDUIT SHALL BE ANCHORED TO WALL.



INSIDE EMR DUAL SERVICE SETTING

FOR 3" OR LARGER DOMESTIC METER WITH BACKFLOW PREVENTER

GREATER CINCINNATI WATER WORKS

COMMERCIAL SERVICES DIVISION

APPROVED

DATE
1/1/04

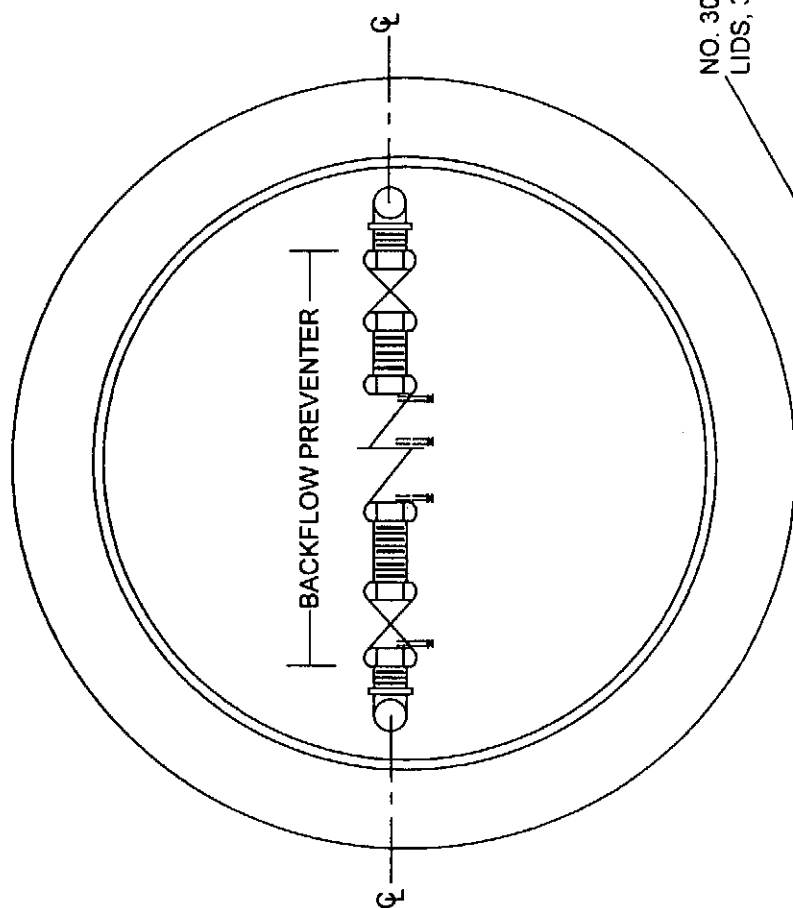
STANDARD DRAWING
108-18



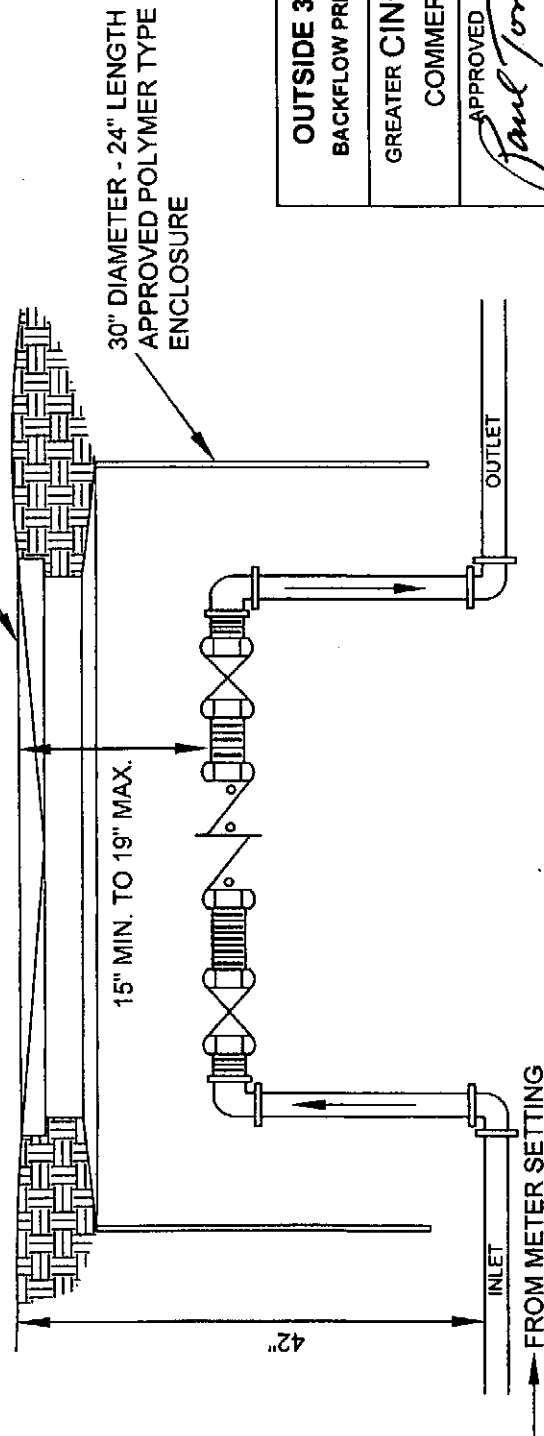
BRANCH FROM PUBLIC WATER MAIN TO PROPERTY LINE/RIGHT OF WAY INSTALLED BY WATER WORKS

DETAILS:

- A) THE BACKFLOW PREVENTER SHALL BE LOCATED AS CLOSE AS PRACTICAL TO THE METER SETTING.
- B) THAT PORTION OF THE SERVICE PIPING BETWEEN THE METER AND THE BACKFLOW PREVENTER SHALL BE VOID OF BRANCHES OR OUTLETS OF ANY KIND.
- C) BACKFLOW PREVENTER SHALL BE CENTERED IN BOX, 15" TO 19" BELOW GRADE.
- D) BACKFLOW PREVENTER MUST BE NO SMALLER THAN THE SIZE OF THE METER.

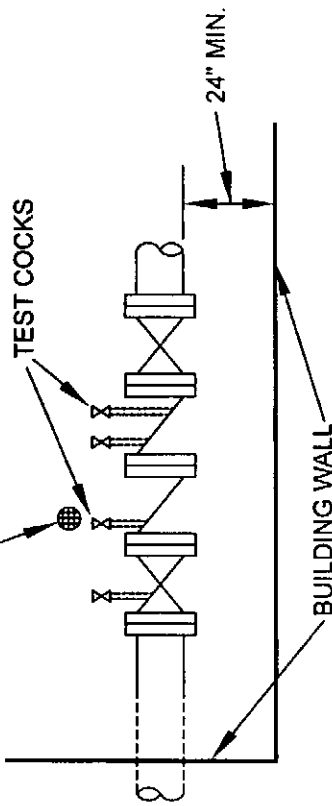


NO. 30 FORD MONITOR COVER WITH DOUBLE LIDS, 30" O.D. FLANGE, AND 20" LID 7 1/2" DEEP



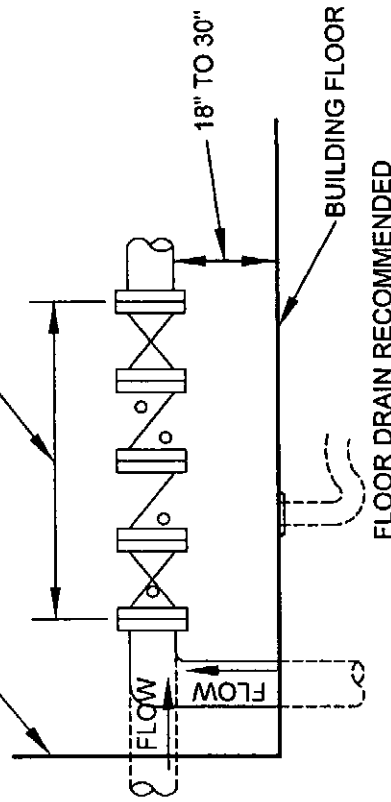
OUTSIDE 3/4" TO 2" DOUBLE CHECK BACKFLOW PREVENTER IN FROST PROOF SETTING	
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION	
APPROVED <i>Paul Turner</i>	DATE 1/1/04
STANDARD DRAWING	108-19

FLOOR DRAIN RECOMMENDED



BUILDING WALL

BACKFLOW PREVENTER TO BE NO SMALLER THAN METER SIZE



DETAILS:

- IF THE BACKFLOW PREVENTER IS ALLOWED TO BE INSTALLED INSIDE A BUILDING, THAT PORTION OF THE SERVICE PIPING BETWEEN THE METER AND THE BACKFLOW PREVENTER SHALL BE VOID OF BRANCHES OR OUTLETS OF ANY KIND.
- THE BACKFLOW PREVENTER INSIDE A BUILDING SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE POINT WHERE THE PIPING ENTERS THE BUILDING. THIS LOCATION SHALL BE DETERMINED BY THE GCWW.
- THE BACKFLOW PREVENTER SHALL BE INSTALLED DOWNSTREAM OF THE METER, A MINIMUM OF 24" FROM THE NEAREST WALL, WITH THE TEST COCKS FACING THE CENTER OF THE ROOM.
- WATER WILL BE SPILLED DURING PERIODIC TESTING OF ALL BACKFLOW PREVENTERS AND DURING OPERATION OF REDUCED PRESSURE TYPE PREVENTERS. FOR THIS REASON, IT IS RECOMMENDED THAT A FLOOR DRAIN BE INSTALLED AS CLOSE AS POSSIBLE TO THE DEVICE.
- IN LIEU OF A FLOOR DRAIN, THE DISCHARGE FROM A REDUCED PRESSURE BACKFLOW PREVENTER MAY BE PIPED TO A SEWER PROVIDED AN APPROVED AIR-GAP IS MAINTAINED AT THE RELIEF VALVE OF THE DEVICE.



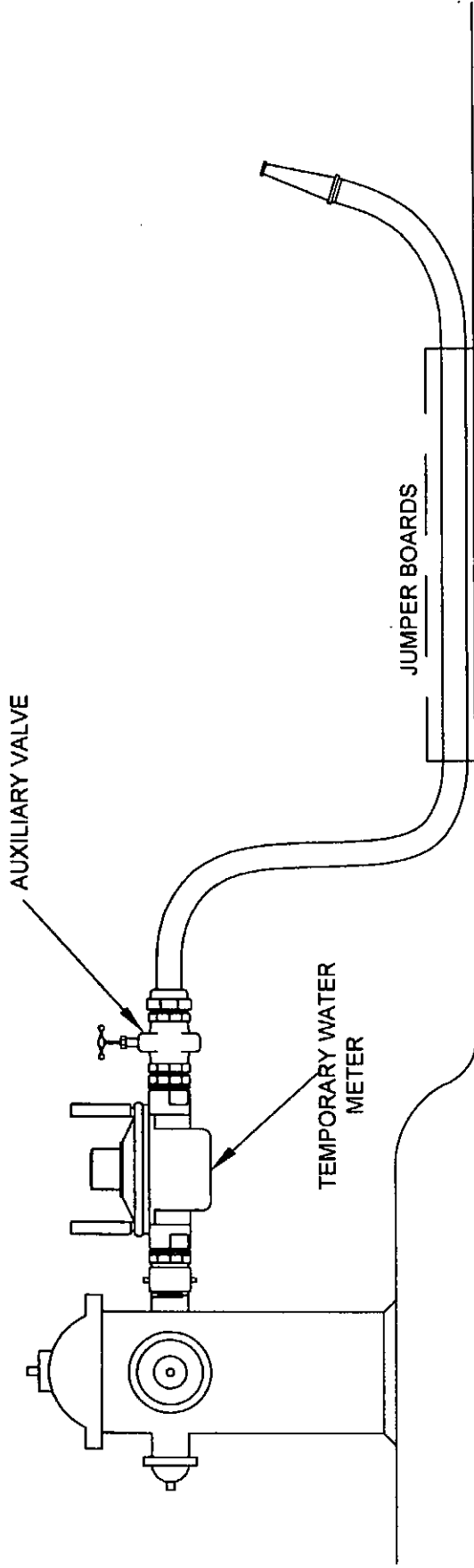
INSIDE SETTING OF BACKFLOW PREVENTER

GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED


DATE
1/1/04

STANDARD DRAWING
108-20



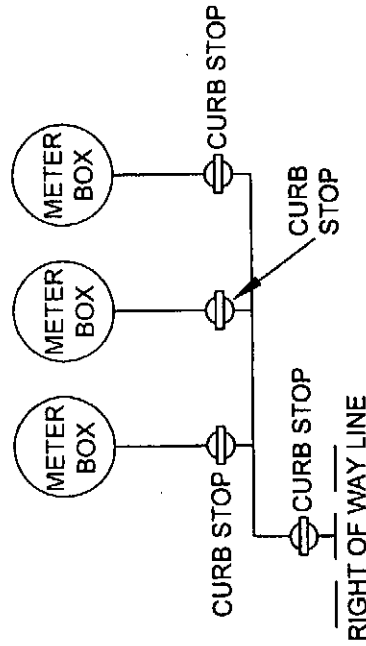
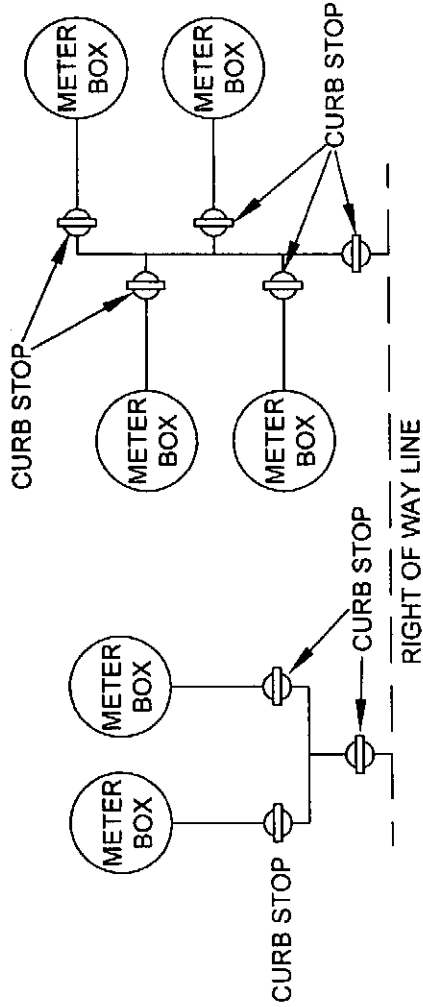
- A) A PERFORMANCE BOND MUST BE ON FILE WITH THE GCWW.
- B) LOCAL FIRE DEPARTMENT APPROVAL MUST BE ACQUIRED.
- C) WHEN A & B ARE MET, PICK UP PERMIT, METER AND SPANNER WRENCH AT GCWW.
- D) USE AN APPROVED FIRE HYDRANT SPANNER ONLY, TURN ON AND OFF SLOWLY.
- E) FIRE HYDRANT SHOULD BE TURNED ON FULL AND AUXILIARY VALVE USED TO CONTROL FLOW OF WATER.
- F) ALL CAPS MUST BE ON TIGHT TO PREVENT LEAKAGE.
- G) WHERE VOLUME IS RESTRICTED, HOSE MUST BE NO LARGER THAN 1 1/2".
- H) WHERE TRAFFIC CROSSES HOSE, JUMPER BOARDS MUST BE USED.
- I) WHEN JOB IS COMPLETE REMOVE METER, PUMP OUT HYDRANT AND PUT ALL CAPS BACK ON TIGHT.
- J) RETURN METER AND SPANNER WRENCH TO GCWW.
- K) IN FREEZING WEATHER, PUMP OUT FIRE HYDRANT EACH DAY AFTER USE, AND PHONE THE FIRE DEPARTMENT WHICH HAS JURISDICTION.

**PERMIT MAY BE REVOKED FOR FAILURE TO
COMPLY WITH ABOVE REGULATIONS.**

	CONNECTION TO FIRE HYDRANT FOR TEMPORARY WATER		
	GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION		
	APPROVED <i>Paul Tinner</i>	DATE 1/1/04	STANDARD DRAWING 108-21

DETAILS:

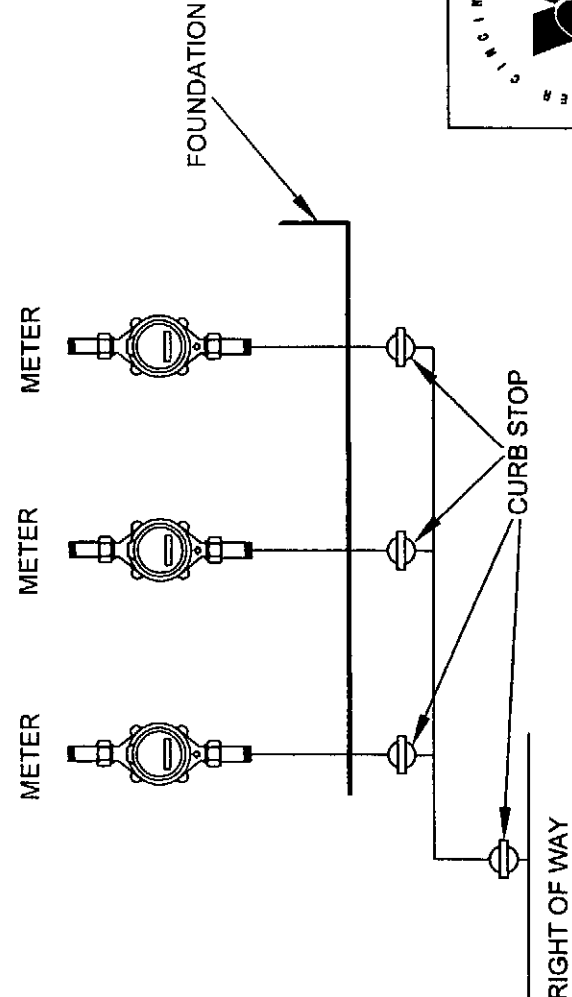
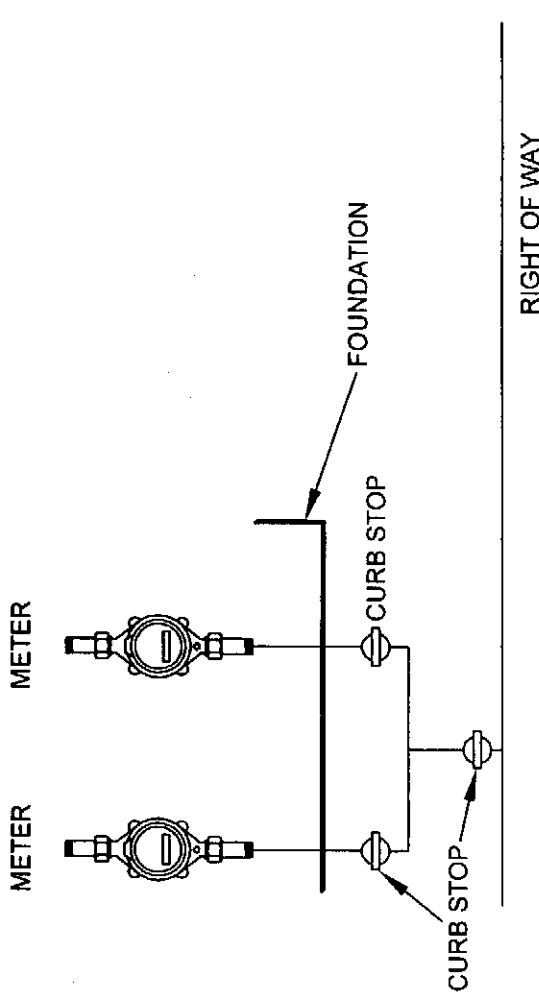
- A) APPROVAL OF ALL MANIFOLD SETTINGS SHALL BE DETERMINED BY THE DIRECTOR OR AUTHORIZED REPRESENTATIVE.
- B) IN NO CASE SHALL THE CAPACITY (IN GALLONS) OF THE TOTAL METERS BE GREATER THAN THE CAPACITY OF THE BRANCH.
- C) ALL TEES SHALL BE SILVER SOLDERED.
- D) METERS INSTALLED IN OUTSIDE MANIFOLD MAY BE INSTALLED IN SEVERAL WAYS, BUT IN ALL CASES THE BOXES SHALL BE INSTALLED AS CLOSE TOGETHER AS POSSIBLE.
- E) THE REDUCTION TO ACCOMMODATE EACH METER SHALL BE MADE AT THE TEE OR ON THE VERTICAL RISER (WITHIN 4" OF THE INLET VALVE).
- F) A CURB BOX SHALL BE INSTALLED OVER EACH INDIVIDUAL CURB STOP OF EACH INDIVIDUAL MANIFOLD METER, PLUS A CURB BOX SHALL BE INSTALLED OVER THE MAIN BRANCH CURB STOP.



MANIFOLD METERS FROST PROOF BOX SETTING


GREATER CINCINNATI WATER WORKS
COMMERCIAL SERVICES DIVISION

APPROVED *Paul Turner* DATE 1/1/04 STANDARD DRAWING **108-22**



DETAILS:

- A) APPROVAL OF ALL MANIFOLD SETTINGS SHALL BE DETERMINED BY THE DIRECTOR OR AUTHORIZED REPRESENTATIVE.
- B) IN NO CASE SHALL THE CAPACITY (IN GALLONS) OF THE TOTAL METERS BE GREATER THAN THE CAPACITY OF THE BRANCH.
- C) METERS INSTALLED IN AN "INSIDE" MANIFOLD MAY BE INSTALLED IN SEVERAL WAYS, BUT IN ALL CASES THE METERS SHALL BE INSTALLED AS CLOSE TOGETHER AS POSSIBLE.
- D) THE REDUCTION TO ACCOMMODATE EACH METER SHALL BE MADE AT THE TEE OR ON THE VERTICAL RISER (WITHIN 4" OF THE INLET VALVE).
- E) A CURB BOX SHALL BE INSTALLED OVER EACH INDIVIDUAL CURB STOP OF EACH INDIVIDUAL MANIFOLD METER, PLUS A CURB BOX SHALL BE INSTALLED OVER THE MAIN BRANCH CURB STOP.
- F) ALL METERS INSTALLED IN MANIFOLD SHALL BE INSTALLED IN A STANDARD METER SETTING PER STANDARD DRAWING 108-3 OR 108-3A INSIDE METER SETTING STANDARD DETAIL FOR THE APPROPRIATE METER SIZE.

			MANIFOLD METERS INSIDE SETTING	
GREATER CINCINNATI WATER WORKS COMMERCIAL SERVICES DIVISION			APPROVED <i>Paul T. ...</i>	DATE 1/1/04
			STANDARD DRAWING 	108-23